



Blue Growth

Scenarios and drivers for Sustainable Growth from the Oceans, Seas and Coasts

Annex 2 R&D data mining Report

Call for tenders No. MARE/2010/01

Client: European Commission, DG MARE

Rotterdam/Brussels, 12th July 2012



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Annex to the Final Report

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Rotterdam/Brussels, 12th July 2012

prepared by

THOMSON REUTERS IP CONSULTING

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IP CONSULTANT

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THOMSON REUTERS

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1 INTRODUCTION AND PROJECT OVERVIEW

Idea Consult engaged in an IP analysis project with Thomson Reuters IP Consulting Services to evaluate the relative strength or weakness of EU research organizations within the technical areas below:

- 2.1 Oil & Gas
- 2.3 Growing Aquatic Products
- 2.4 High Value
- 3.2 Offshore Wind
- 3.3 Ocean Renewable Energy
- 3.6 Marine Mineral
- 3.7 Desalination
- 5.1 Protection
- 6.1 Traceability
- 6.3 Environment Monitoring

The project was to cover both patents and published articles and the search strategies were run against the Derwent World Patent Index and Web of Science databases. The search strategies are detailed over the next few pages.

2 SEARCH STRATEGIES

Marine Minerals

Patents
<p>TAB=(((deep ADJ sea) or deep?sea* or offshore or "off shore" or off?shore or sea or ocean* or (deep ADJ water) or deepwater* or deep?water* or (under ADJ water) or underwater* or under?water* or marine* or sea?floor* or seafloor* or seabed* or sea?bed* or ocean?floor* or oceanfloor* or oceanbed* or ocean?bed*)) and ((mining or mined or mine or extract* or retriev* or excavat* or drill* or tap or tapping or tapped) NEAR6 (iron* or ferro* or ferri* or ore or ores or tin or copper* or manganese* or cobalt* or beryllium* or germanium* or graphite* or carbon* or gold* or sulph* or sulf* or phosphor* or diamond* or lime* or calcium* or (critical* NEAR3 (raw material)) or (critical* NEAR3 (raw materials)) or mineral* or metal*))) and DP>=(20000101);</p>
<p>TAB=(((deep ADJ sea) or deep?sea* or offshore or "off shore" or off?shore or sea or ocean* or (deep ADJ water) or deepwater* or deep?water* or (under ADJ water) or underwater* or under?water* or marine* or sea?floor* or seafloor* or seabed* or sea?bed* or ocean?floor* or oceanfloor* or oceanbed* or ocean?bed*)) NEAR4 (mining or mined or mine or extract* or retriev* or excavat* or drill* or tap or tapping or tapped) and (iron* or ferro* or ferri* or ore or ores or tin or copper* or manganese* or cobalt* or beryllium* or germanium* or graphite* or carbon* or gold* or sulph* or sulf* or phosphor* or diamond* or lime* or calcium* or (critical* NEAR3 (raw ADJ material)) or (critical* NEAR3 (raw ADJ materials)) or mineral* or metal*)) and DP>=(20000101);</p>
Literature
<p>TI=(((deep ADJ sea) or deep?sea* or offshore or "off shore" or off?shore or sea or ocean* or (deep ADJ water) or deepwater* or deep?water* or (under ADJ water) or underwater* or under?water* or marine* or sea?floor* or seafloor* or seabed* or sea?bed* or ocean?floor* or oceanfloor* or oceanbed* or ocean?bed*)) and ALL=(((mining or mined or "mine" or extract* or retriev* or excavat* or drill* or "tap" or tapping or tapped) NEAR4 (iron* or ferro* or ferri* or "ore" or "ores" or "tin" or copper* or manganese* or cobalt* or beryllium* or germanium* or graphite* or carbon* or gold*))) and (TF>=(2000) AND TF<=(2011));</p>
<p>TI=(((deep ADJ sea) or deep?sea* or offshore or "off shore" or off?shore or sea or ocean* or (deep ADJ water) or deepwater* or deep?water* or (under ADJ water) or underwater* or under?water* or marine* or sea?floor* or seafloor* or seabed* or sea?bed* or ocean?floor* or oceanfloor* or oceanbed* or ocean?bed*)) and ALL=(((mining or mined or "mine" or extract* or retriev* or excavat* or drill* or "tap" or tapping or tapped) NEAR6 (sulph* or sulf* or phosphor* or diamond* or "lime" or calcium* or (critical raw material) or (critical raw materials) or mineral* or metal*))) and (TF>=(2000) AND TF<=(2011));</p>

High Value

Patents
<p>((NOV=(((marine or sub?marine* or sea or ocean* or pelagic or (salt ADJ water) or (salty ADJ water) or thalassic) NEAR3 (material* or resource* or plant* or weed or weeds or organism* or micro?organism* or animal* or algae* or microalgae or micro?algae* or macroalgae* or macro?algae*)) or seaweed* or sea?weed* or plankton* or phytoplankton* or phyto?plankton* or (sea NEAR2 shell*) or (sea ADJ bed) or (ocean ADJ bed))) or (IC=((A23L0001325) or (A23L0001326) or (A23L0001327) or (A23L0001328) or (A23L000133) or (A23L0001333) or (A23L0001337) or (A61K003560) or (A01N65/03) or (A23J3/20) or (A61K36/02*) or (C07K4/08) or (C07K14/405) or (A61K36/02) or (A61K35/66) or (C12R1/89) or (C22B3/18))) or (EC=((A23L0001325) or (A23L0001326) or (A23L0001327) or (A23L0001328) or (A23L000133) or (A23L0001333) or (A23L0001337) or (A61K003560) or (A23L0001325D) or (A23L0001325E) or (A23L0001325H) or (A23L0001328B) or (A61K003560) or (A01N65/03) or (A23J3/20) or (A61K36/02*) or (C07K4/08) or (C07K14/405) or (A61K36/02) or (A61K35/66) or (C12R1/89) or (C22B3/18))) or (UC=((426/643) or (426/575))) or (MC=((D02-A03A) or (D03-F04) or (D03-G05)))) and ((USE=(medical* or medicine* or drug* or cosmetic* or health* or polymer* or polyester* or biofilm* or bio?film* or biocide*))) and DP>=(20000101)</p>
Literature
<p>((ALL=(((marine or sub?marine* or sea or ocean* or pelagic or (salt ADJ water) or (salty ADJ water) or thalassic) NEAR3 (material* or resource* or plant* or weed or weeds or organism* or micro?organism* or animal* or algae* or microalgae or micro?algae* or macroalgae* or macro?algae*)) or seaweed* or sea?weed* or plankton* or phytoplankton* or phyto?plankton* or (sea NEAR2 shell*) or (sea ADJ bed) or (ocean ADJ bed))) and ((ALL=(medical* or medicine* or drug* or cosmetic* or health* or polymer* or polyester* or biofilm* or bio?film* or biocide*))) and (TF>=(2000) AND TF<=(2011))</p>

Oil & Gas

Patents
((TAB=(((deep ADJ sea) or deep?sea* or offshore or "off shore" or off?shore or sea or ocean* or (deep ADJ water) or deepwater* or deep?water* or (under ADJ water) or underwater* or under?water* or marine*) NEAR3 (drill* or production* or explor* or (carbon capture) or dredg* or oil or petroleum or methane or gas or install* or geo* or infrastructure* or infra?structure* or (working environment) or (operating environment) or HSE)))) and DP>=(20000101)) and MC=(H*);
Literature
ALL=(((deep ADJ sea) or deep?sea* or offshore or "off shore" or off?shore or sea or ocean* or (deep ADJ water) or deepwater* or deep?water* or (under ADJ water) or underwater* or under?water* or marine*) NEAR3 (drill* or production* or explor* or dredg* or (working ADJ environment) or (operating ADJ environment) or HSE)) and ((carbon ADJ capture) or oil or petroleum or methane or gas)) and (TF>=(2000) AND TF<=(2011));

Offshore wind

Patents
MC=(X15-B03) and DP>=(20000101)
(MC=((X15-B) or (X15-B01) or (X15-B02) or (X15-B04) or (X15-B05) or (X15-B06) or (X15-B09))) and DP>=(20000101) and TAB=((deep ADJ sea) or deep?sea* or offshore or "off shore" or off?shore or sea or ocean* or (deep ADJ water) or deepwater* or deep?water* or (under ADJ water) or underwater* or under?water* or marine*)
Literature
ALL=(((deep ADJ sea) or deep?sea* or offshore or "off shore" or off?shore or sea or ocean* or (deep ADJ water) or deepwater* or deep?water* or (under ADJ water) or underwater* or under?water* or marine*) and (wind NEAR3 (power or energy))) and (TF>=(2000) AND TF<=(2011))

Desalination

Patents
((IC=(C02F 103/08)) or (MC=((D04-B07F) or (Q24-B07)))) and DP>=(20000101)
(UC=(210*)) and TAB=((salt* or salin* or brine*) NEAR3 water*) and DP>=(20000101)
TAB=(((salt* or salin* or brine*) NEAR3 water*) and (desalin* or de?salin* or ((remov* or extract*) NEAR3 (salt*))) and ((revers* NEAR3 osmo*) or membrane* or nano?filt* or nanofilt* or (nano NEAR2 filt*) or electro?dial* or electro?dial* or distil*)) and DP>=(20000101)
Literature
ALL=(((salt or salin*) NEAR3 water*) and (desalin* or de?salin* or ((remov* or extract*) NEAR3 salt*)) and ((revers* NEAR3 osmo*) or membrane* or nano?filt* or nanofilt* or (nano NEAR2 filt*) or electro?dial* or electro?dial* or distil*)) and (TF>=(2000) AND TF<=(2011));

Protection

Patents
((TAB=(((coast* or shore* or seashore* or sea?shore* or beach*) NEAR3 (eros* or erod* or flood* or wash*)) NEAR5 (preven* or inhibit* or stop* or decreas* or protect*))) or ((TAB=(coast* or shore* or seashore* or sea?shore*)) and ((IC=((E02B000304) or (E02B000306) or (E02B000308) or (E02B000310) or (E02B000312) or (E02B000314))) or (EC=((E02B000304*) or (E02B000306*) or (E02B000308*) or (E02B000310*) or (E02B000312*) or (E02B000314*))) or (UC=((405/15) or (405/16) or (405/17) or (405/18) or (405/19) or (405/20) or (405/21) or (405/22) or (405/23) or (405/24) or (405/25) or (405/26) or (405/27) or (405/28) or (405/29) or (405/30) or (405/31) or (405/32) or (405/33) or (405/34) or (405/35) or (405/302.6))) or (MC=(C14-T01B)))) and DP>=(20000101)
TAB=(((eros* or erod* or flood* or wash*)) and (dike or dikes or dam or dams or dredg*)) and (coast* or shore*

or seashore* or sea?shore* or beach*)) and DP>=(20000101)
Literature
ALL=((soil* NEAR3 (eros* or erod* or wash*)) NEAR5 (preven* or inhibit* or stop* or decreas*)) and (TF>=(2000) AND TF<=(2011));
ALL=((soil* NEAR3 (eros* or erod* or flood* or wash*)) and (dike or dikes or dam or dams or dredg*) and (coast* or shore* or seashore* or sea?shore* or beach*)) and (TF>=(2000) AND TF<=(2011))

Traceability

Patents
((TAB=((illegal* or crime* or criminal* or terror* or theft* or robber* or thieves or thief* or smuggl* or pirate* or unallowed) NEAR3 (stop* or inhibit* or protect* or detect* or against or counter* or defen* or traffi*)) or visa or ((trace* or track* or screen* or scan* or monitor* or detect*) NEAR3 (goods or container* or luggage* or baggage*)) or (MC=((Q14-H) or (T01-L02E) or (W01-C01Q8A) or (W04-J01) or (W04-J01C) or (W05-B01A2) or (W05-B01A5) or (W05-B01A5C) or (W05-B01B2) or (W05-B01C1B) or (W05-B01C2B) or (X22-C02D3) or (X22-D03) or (X22-D03A) or (X22-D03C) or (X22-X03)))) and ((TAB=(maritime or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast*)) or (IC=(B63*)) or (EC=(B63*)) or (MC=(Q24*)) and DP>=(20000101) NOT (IC=(C01* or C02* or C03* or C04* or C05* or C06* or C07* or C08* or C09* or C10* or C11* or C12* or C13* or C14* or C21* or C22* or C23* or C25* or C30* or C40* or C99*))
(TAB=((advanced information systems) or (Long Range Information Tracking) or AIS or LRIT or ((trace* or track* or screen* or scan* or monitor* or detect*) NEAR3 (aircraft* or aeroplane* or plane*))) and ((TAB=(maritime or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast*)) or (IC=(B63*)) or (EC=(B63*)) or (MC=(Q24*))) and DP>=(20000101)
Literature
ALL((((illegal* or crime* or criminal* or terror* or theft* or robber* or thieves or thief* or smuggl* or pirate* or unallowed) NEAR3 (stop* or inhibit* or protect* or detect* or against or counter* or defen* or traffi*)) or visa or ((trace* or track* or screen* or scan* or monitor* or detect*) NEAR3 (goods or container* or luggage* or baggage*)) and (ship or (sea NEAR2 vessel*) or harbour* or harbor* or (sea port))) and (TF>=(2000) AND TF<=(2011))
ALL((((advanced information systems) or (Long Range Information Tracking) or AIS or LRIT or ((trace* or track* or screen* or scan* or monitor* or detect*) NEAR3 (aircraft* or aeroplane* or plane*))) and (ship or (sea NEAR2 vessel*) or harbour* or harbor* or (sea port))) and (TF>=(2000) AND TF<=(2011))

Growing Aquatic Products

Patents
((TAB=(biofoul* or bio?foul* or ((bio or biologic* or marine*) NEAR2 foul*) or antifoul* or anti?foul*)) or (IC=(A01P1* or A01P3* or A01P5* or A01P7* or A01P9* or A01P11* or A01P13* or A01P15* or A01P17* or A01P23*)) and ((TAB=(cage or net or maritime or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast* or ((aqua* or marine* or (under ADJ water) or under?water* or underwater*) NEAR3 farm*)) or (IC=(B63*)) or (EC=(B63*)) or (MC=(Q24*))) and DP>=(20000101)
(IC=(C09D5/16) or EC=(C09D5/16*) or MC=(G02-A05G)) and ((TAB=(cage or net or maritime or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast* or ((aqua* or marine* or (under ADJ water) or under?water* or underwater*) NEAR3 farm*)) or (IC=(B63*)) or (EC=(B63*)) or (MC=(Q24*))) and DP>=(20000101)
TAB=((algae* or microalgae or micro?algae* or macroalgae* or macro?algae*) NEAR4 (cultivat* or cultur* or grow* or photobioreactor or photo?bioreactor or photo?bio?reactor or (photo bioreactor) or (photo bio?reactor) or ferment* or aquacultur or aqua?cultur*)) and DP>=(20000101)
((MC=((B04-B02B3*) OR (B04-F08A*) OR (C04-B02B3*) OR (C04-F08A*))) or (IC=((A01H001300* or (C12N000112*) or (C12R000189*))) or (EC=((A01H001300* or (C12N000112*) or (C12R000189*)))) and TAB=(cultivat* or cultur* or grow* or photobioreactor or photo?bioreactor or photo?bio?reactor or (photo ADJ bioreactor) or (photo ADJ bio?reactor) or ferment* or aquacultur or aqua?cultur*) and DP>=(20000101) and ((TAB=(marine or maritime or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast* or ((aqua* or marine* or (under ADJ water) or under?water* or underwater*) NEAR3 farm*)) or (IC=(B63*)) or (EC=(B63*)) or (MC=(Q24*)))

Literature
ALL=((biofoul* or bio?foul* or ((bio or biologic* or marine*) NEAR2 foul*) or antifoul* or anti?foul*) and (cage or net or maritime or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast* or ((aqua* or marine* or (under ADJ water) or under?water* or underwater*) NEAR3 farm*)) and (TF>=(2000) AND TF<=(2011))
ALL=((algae* or microalgae or micro?algae* or macroalgae* or macro?algae*) NEAR4 (cultivat* or cultur* or grow* or photobioreactor or photo?bioreactor or photo?bio?reactor or (photo bioreactor) or (photo bio?reactor) or ferment* or aquacultur or aqua?cultur*)) and (TF>=(2000) AND TF<=(2011));

Ocean Renewable Energy

Patents
(MC=((X15-C) or (X15-C01) or (X15-C01A) or (X15-C01A1) or (X15-C01A2) or (X15-C01A3) or (X15-C01A4) or (X15-C01A9) or (X15-C01B) or (X15-C01B1) or (X15-C01B2) or (X15-C01C) or (X15-C02) or (X15-C02A) or (X15-C02A1) or (X15-C02A2) or (X15-C02A3) or (X15-C02A9) or (X15-C02B) or (X15-C03))) and DP>=(20000101)
(MC=((X15-E) or (X15-G) or (X15-G01) or (X15-G02))) and ((ALLD=(maritime or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast* or ((aqua* or marine* or (under ADJ water) or under?water* or underwater*) NEAR3 farm*)) or (IC=(B63*)) or (EC=(B63*)) or (MC=(Q24*))) and DP>=(20000101)
TAB=((osmot* or osmos* or electrodialysis or electro?dialysis) and (((salt* or salin* or brine or sea or ocean*) NEAR3 water*) or sea?water* or seawater*) and ((fresh or river) NEAR3 water*)) and DP>=(20000101) and ((ALLD=((power or energy) NEAR4 (generat* or produc* or harvest*))) or (MC=(X15*)) or (IC=(F03G7/00)) or (EC=(F03G7/00*)));
(TAB=((osmot* or osmos* or (salinity gradient)) NEAR3 (energy or power))) and DP>=(20000101) and ((TAB=((power or energy) NEAR4 (generat* or produc* or harvest*))) or (MC=(X15*)) or (IC=(F03G7/00)) or (EC=(F03G7/00*)))
Literature
ALL=((wave NEAR3 energy) and (maritime or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast* or offshore or off?shore or "off shore" or "near shore")) and (TF>=(2000) AND TF<=(2011));
ALL((((tide or tidal) NEAR3 (energy or power)) and (maritime or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast* or offshore or off?shore or "off shore" or "near shore")) and (TF>=(2000) AND TF<=(2011))
ALL((((geothermal or geo?thermal* or (geo thermal)) NEAR3 (energy or power)) and (maritime or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast* or offshore or off?shore or "off shore" or "near shore")) and (TF>=(2000) AND TF<=(2011))
ALL=((ocean thermal) NEAR2 (power or energy)) and (TF>=(2000) AND TF<=(2011))
ALL((((blue or osmotic or (saline gradient)) NEAR2 (energy or power)) and (maritime or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast* or offshore or off?shore or "off shore" or "near shore")) and (TF>=(2000) AND TF<=(2011))
ALL((((biomass or bio?mass or (bio mass)) NEAR3 (energy or power)) or biofuel* or bio?fuel*) and (maritime or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast* or offshore or off?shore or "off shore" or "near shore")) and (TF>=(2000) AND TF<=(2011))
ALL=((wave NEAR3 energy) and (attenuator* or absorber* or (water column) or overtopping or (wave surge collector) or (wave surge collectors))) and (TF>=(2000) AND TF<=(2011));
ALL((((tide or tidal) NEAR3 (energy or power)) and (turbine* or hydro?foil* or hydrofoil*)) and (TF>=(2000) AND TF<=(2011))

Environment Monitoring

Patents

((TAB=(((global* or environment* or weather* or geographic* or geologic* or physical* or chemical* or biological*) NEAR4 (monitor* or watch* or survey* or observ* or "in situ")) or satellite* or (remote NEAR2 sens*) or (weather NEAR4 (predict* or forecast*)))) and DP>=(20000101) and ((ALLD=(maritime or marine or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast* or ((aqua* or marine* or (under ADJ water) or under?water* or underwater*) NEAR3 farm*)) or (IC=(B63*)) or (EC=(B63*)) or (MC=(Q24*)))) NOT (IC=(C01* or C02* or C03* or C04* or C05* or C06* or C07* or C08* or C09* or C10* or C11* or C12* OR c13* or C14* or C21* or C22* or C23*));

(MC=((S03-D05) or (S03-D06))) and DP>=(20000101) and ((ALLD=(maritime or marine or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast* or ((aqua* or marine* or (under ADJ water) or under?water* or underwater*) NEAR3 farm*)) or (IC=(B63*)) or (EC=(B63*)) or (MC=(Q24*)))) NOT (IC=(C01* or C02* or C03* or C04* or C05* or C06* or C07* or C08* or C09* or C10* or C11* or C12* OR c13* or C14* or C21* or C22* or C23*));

Literature

ALL=(((environment* or weather* or geographic* or geologic* or meteor* or physical* or chemical* or biological*) NEAR2 (monitor* or survey* or "in situ")) or (remote NEAR2 sens*) or satellite* or (weather NEAR2 (predict* or forecast*)))) and (TF>=(2000) AND TF<=(2011)) and TI=(maritime or marine or sea or harbor* or harbour* or (sea ADJ vessel) or (sea ADJ vessels) or ship or ships or coast* or ocean*)

3 METHODOLOGY & DEFINITION

PATENTS & PUBLICATIONS AS S&T INDICATORS

Patents and scientific publications are a measurement of output performance and can be used to assess the relative strengths of a country, region or entity. A sub-indicator of absolute volumes is quality measurement of patents and scientific publications and in the analysis one quality parameter used is citation. The type of citation used is the count of citations made by future publications, therefore indicating a level of impact that an invention or scientific publication has had on a particular field.

PATENT COUNTING

The DWPI database is structured around “patent families”^[1].

Each related patent application and granted patent is added to the DWPI family record as it is published. This being the case, all counts of records in this project refer to patent families or inventions, and not to individual patent documents. For example, the European application, European granted patent and the US granted patent for a single invention family is counted in aggregate as “1” in all the analyses in this report unless otherwise noted.

This approach provides a more accurate measure of the level of inventive activity from a company within the technical space, and a truer picture of the overall level of innovation.

PRIORITY COUNTRY

Priority country is typically the country where the invention was invented and therefore has been used as a proxy to determine levels of patenting output by a particular country. This measurement is used in the absence of an inventor country within the patent data, this particular field is not present across many authorities.

CO-ASSIGNMENT

Where families have more than one assignee, the counts in the assignee tables will contain a count for each assignee. However, within the country tables only one count is attributed for co-assigned inventions ensuring no double counting due to multiple assignees.

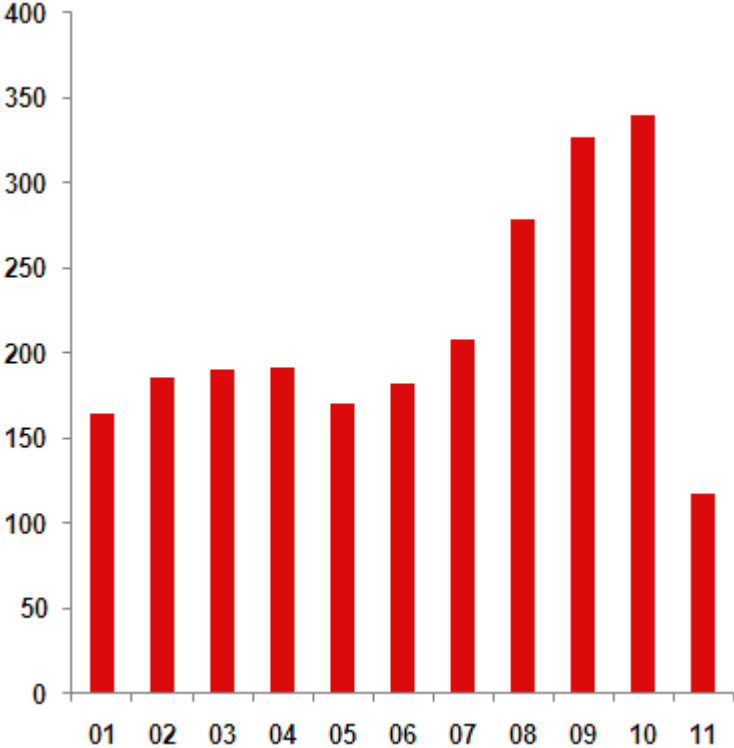
PCT FILINGS

PCT filings are becoming more popular as they allow entities to delay decisions about large investments of patent maintenance fees. As entities target global markets they need to decide on the correct markets to protect their inventions. PCT filings offer a longer decision period before deciding how many countries they should go to national phase to obtain a granted patent.

^[1] A single patent only provides a statutory monopoly for the patented technology within the legal jurisdiction of the authority that granted the patent. This means that inventors must file applications for a patent in each jurisdiction where they foresee a need for protection.

4 Oil & Gas

4.1 Invention Velocity



4.2 Priority Country Analysis

PRIORITY COUNTRIES	INVENTIONS	TOTAL CITES	CITES PER INVENTION
UNITED STATES OF AMERICA	1415	1065	0.8
PATENT CO-OPERATION TREA	953	166	0.2
UNITED KINGDOM	426	303	0.7
CHINA	371	3	0.0
NORWAY	264	96	0.4
EUROPEAN PATENT OFFICE	216	16	0.1
JAPAN	213	92	0.4
FRANCE	188	123	0.7
GERMANY	163	52	0.3
CANADA	132	1	0.0
RUSSIAN FEDERATION	124	3	0.0
AUSTRALIA	101	5	0.0
BRAZIL	93	83	0.9
KOREA, REPUBLIC OF	53	3	0.1
NETHERLANDS	21	5	0.2
SINGAPORE	17	0	0.0
SPAIN	12	0	0.0
DENMARK	10	4	0.4
MEXICO	10	0	0.0
SWEDEN	7	2	0.3
ITALY	7	0	0.0
FINLAND	5	0	0.0
ROMANIA	4	0	0.0
SOUTH AFRICA	4	0	0.0
MALAYSIA	3	0	0.0
BELGIUM	1	0	0.0
GREECE	1	0	0.0
ISRAEL	1	0	0.0
LUXEMBOURG	1	0	0.0
NEW ZEALAND	1	0	0.0
POLAND	1	0	0.0
SWITZERLAND	1	0	0.0
TUNISIA	1	0	0.0

4.3 Top Assignees

TOP ASSIGNEES	TOTAL
ABB GROUP	115
CHINA NAT OFF SHORE OIL CORP	76
HALLIBURTON CO	59
SHELL OIL CO	55
TECHNIP	47
EXXON	42
SCHLUMBERGER TECHNOLOGY CORP	42
BAKER HUGHES INC	38
INST FRANCAIS DU PETROLE	32
CHEVRON CORPORATION	29
FMC CORP	29
COFLEXIP	28
PETROBRAS PETROLEO BRASIL SA	28
WEATHERFORD	20
MITSUBISHI GROUP OF COMPANIES	19
SAIPEM	19
DEEP INDUSTRIES LTD	18
DEN NORSEKE STATS OLJESEL	17
INFINEUM INT LTD	15
STATOIL ASA	14
M-I LLC	13
NORSK HYDRO AS	13
SIEMENS	13
BP GLOBAL	12
SMITH INT INC	12
BAOJI PETROLEUM MACHINERY CO LTD	11
CHEMTURA CORP	11
UNIV CHINA	11
CAMERON INT CORP	10
CONOCO INC	10
ITREC BV	10
SINGLE BUOY MOORINGS	10

4.4 Top EU Academic Institutes

OIL GAS -EU ACADEMIC INSTITUTES	INVENTIONS
UNIV FAR E SUPPLY NETWORK	2
MILANO POLITECNICO	1
RUSSIAN ACADEMY OF SCIENCES	1
UNIV BERLIN TECH	1
UNIV LEEDS	1
UNIV ST PETERSBURG	1
UNIV UFA OIL TECH	1
UNIV VOLG TECH	1

4.5 Top ROW Academic Institutes

OIL GAS -ROW ACADEMIC INSTITUTES	INVENTIONS
UNIV CHINA	11
UNIV CHINA PETROLEUM EAST CHINA	7
CHINESE ACADEMY OF SCIENCES	6
UNIV TEXAS	6
UNIV ZHEJIANG	4
UNIV DALIAN	3
UNIV SOUTHWEST PETROLEUM	3
UNIV BEIJING	2
UNIV FEDERAL DO RIO GRANDE DO SUL	2
UNIV SHANGHAI JIAOTONG	2
ACAD SINICA INSTITUTE MECHANICS	1
UNIV CALIFORNIA	1
UNIV CENT FLORIDA	1
UNIV CHICAGO	1
UNIV CHINESE GEOLOGICAL WUHAN	1
UNIV EAST CHINA SCI & TECHNOLOGY	1
UNIV HARBIN	1
UNIV HUADONG POLYTECHNIC	1
UNIV KYOTO	1
UNIV NINGBO	1
UNIV OKLAHOMA	1
UNIV SHAANXI SCI & TECHNOLOGY	1
UNIV SHANDONG	1
UNIV SHANGHAI COMMUNICATION	1
UNIV TIANJIN IND	1
UNIV TOHOKU	1
UNIV TOKYO	1
UNIV TONGJI	1
UNIV WUHAN	1
UNIV WUHAN SCI&TECHNOLOGY	1
UNIV YANGTZE	1
UNIV YANSHAN	1
UNIV ZHEJIANG OCEAN	1
UNIV ZHENGZHOU	1

4.6 Cites per Inventions Analysis

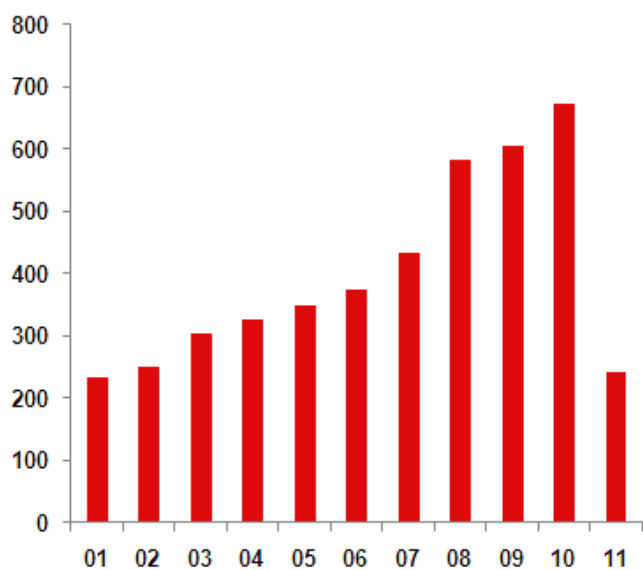
OIL GAS ACADEMIC INSTITUTES	INVENTIONS	TOTAL CITES	CITES PER PATENT
UNIV CALIFORNIA	1	26	26.0
UNIV TEXAS	6	19	3.2
UNIV TOKYO	1	3	3.0
UNIV CHICAGO	1	2	2.0
UNIV OKLAHOMA	1	2	2.0
UNIV CENT FLORIDA	1	1	1.0
UNIV WUHAN	1	1	1.0
ACAD SINICA INSTITUTE MECHANICS	1	0	0.0
CHINESE ACADEMY OF SCIENCES	6	0	0.0
MILANO POLITECNICO	1	0	0.0
RUSSIAN ACADEMY OF SCIENCES	1	0	0.0
UNIV BEIJING	2	0	0.0
UNIV BERLIN TECH	1	0	0.0
UNIV CHINA	11	0	0.0
UNIV CHINA PETROLEUM EAST CHINA	7	0	0.0
UNIV CHINESE GEOLOGICAL WUHAN	1	0	0.0
UNIV DALIAN	3	0	0.0
UNIV EAST CHINA SCI & TECHNOLOGY	1	0	0.0
UNIV FAR E SUPPLY NETWORK	2	0	0.0
UNIV FEDERAL DO RIO GRANDE DO SUL	2	0	0.0
UNIV GUBKIN OIL GAS	1	0	0.0
UNIV HARBIN	1	0	0.0
UNIV HUADONG POLYTECHNIC	1	0	0.0
UNIV KYOTO	1	0	0.0
UNIV LEEDS	1	0	0.0
UNIV NINGBO	1	0	0.0
UNIV SHAANXI SCI & TECHNOLOGY	1	0	0.0
UNIV SHANDONG	1	0	0.0
UNIV SHANGHAI COMMUNICATION	1	0	0.0
UNIV SHANGHAI JIAOTONG	2	0	0.0
UNIV SOUTHWEST PETROLEUM	3	0	0.0
UNIV ST PETERSBURG	1	0	0.0
UNIV TIANJIN IND	1	0	0.0
UNIV TOHOKU	1	0	0.0
UNIV TONGJI	1	0	0.0
UNIV UFA OIL TECH	1	0	0.0
UNIV VOLG TECH	1	0	0.0
UNIV WUHAN SCI&TECHNOLOGY	1	0	0.0
UNIV YANGTZE	1	0	0.0
UNIV YANSHAN	1	0	0.0
UNIV ZHEJIANG	4	0	0.0
UNIV ZHEJIANG OCEAN	1	0	0.0
UNIV ZHENGZHOU	1	0	0.0

4.7 Inventor Analysis

OIL GAS -EU ACADEMIC INVENTORS	INVENTIONS
OBZHIROV A I	3
ZHUKOV A V	3
ZVONAREV M I	3
AKHMETOV A F	1
BUSCHER M	1
FORZATTI P	1
GAIDADIN A N	1
GOLOVANCHIKOV A B	1
GROPPI G	1
IOVANE M	1
JIA J	1
KONDRA SHEV D O	1
KONDRA SHEVA N K	1
KRYLOV S S	1
LEHR H	1
LIETTI L	1
MIGNONE E	1
MILYUTKINA N P	1
MISHTA P V	1
MISHTA V P	1
PETUKHOV V I	1
ROSSINI S	1
RYBAKIN V N	1
STEPANOV B V	1
SUKHOV S V	1
TAGILTSEV A A	1
TRONCONI E	1
VALYAVIN G G	1
VETOSHKIN N I	1
VISCONTI C G	1
WANG M	1
ZAPORIN V P	1
ZENNARO R	1

OIL GAS -ROW ACADEMIC INVENTORS	INVENTIONS
POPE G A	4
ZHANG J	4
ZHANG Y CN	4
CUI X	3
HAN E	3
KE W	3
LIN R CN	3
LIU F	3
LIU W	3
TANG J CN	3
XIAO W	3
XU J	3
ZAHNG F	3
ALEXANDER C H	2
BARAN J R	2
BUENO A F B	2
CHEN Y	2
CHOE J	2
FAN L CN	2
FANG D CN	2
FENG G CN	2
GUO L CN	2
HUANG W CN	2
HUANGFU J	2
JIANG G	2
JUVKAM-WOLD H C	2
LI Z	2
LIU G CN	2
LIU Y CN	2
LIU Z CN	2
NGUYEN Q P	2
RAN L	2
SCHUBERT J J	2

4.8 Publication Rate & Top Author Affiliation Country



COUNTRY	PAPERS	TOTAL CITES	CITES PER PAPER
USA	1352	5441	4.0
CANADA	360	1364	3.8
PEOPLES R CHINA	358	1388	3.9
ENGLAND	324	2414	7.5
GERMANY	304	2266	7.5
JAPAN	287	1801	6.3
FRANCE	226	1060	4.7
NORWAY	212	974	4.6
AUSTRALIA	164	1306	8.0
BRAZIL	156	384	2.5
ITALY	154	1203	7.8
INDIA	145	678	4.7
NETHERLANDS	138	1168	8.5
SPAIN	124	719	5.8
SCOTLAND	119	901	7.6
SOUTH KOREA	91	487	5.4
SWEDEN	73	789	10.8
RUSSIA	70	244	3.5
TURKEY	69	457	6.6
SWITZERLAND	51	716	14.0
MEXICO	49	78	1.6
DENMARK	48	600	12.5
BELGIUM	47	461	9.8
FINLAND	43	309	7.2
IRAN	40	76	1.9
TAIWAN	37	318	8.6
PORTUGAL	35	421	12.0
THAILAND	32	136	4.3
POLAND	32	55	1.7
GREECE	31	333	10.7
NEW ZEALAND	30	212	7.1
SAUDI ARABIA	29	84	2.9
ARGENTINA	27	186	6.9
WALES	26	565	21.7
ISRAEL	25	186	7.4
MALAYSIA	25	116	4.6
VENEZUELA	24	161	6.7
AUSTRIA	23	259	11.3
SOUTH AFRICA	19	83	4.4

4.9 Top Affiliations

OIL GAS - EU AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
CSIC	34	402	11.8
NORWEGIAN UNIV SCI & TECHNOL	33	190	5.8
HERIOT WATT UNIV	32	162	5.1
UNIV BERGEN	31	122	3.9
UNIV LEEDS	28	241	8.6
UNIV BREMEN	26	654	25.2
UNIV LONDON IMPERIAL COLL SCI TECHNOL & M	24	178	7.4
UNIV CAMBRIDGE	22	471	21.4
ALFRED WEGENER INST POLAR & MARINE RES	21	310	14.8
CNRS	21	113	5.4
INST FRANCAIS PETR	20	106	5.3
UNIV STAVANGER	20	48	2.4
CNR	18	348	19.3
UNIV UTRECHT	17	196	11.5
UNIV HELSINKI	16	181	11.3
UNIV PARIS 06	16	132	8.3
UNIV COPENHAGEN	15	163	10.9
UNIV E ANGLIA	15	381	25.4
DELFT UNIV TECHNOL	14	135	9.6
ETH	14	114	8.1
IFREMER	14	103	7.4
STATOIL	14	172	12.3
TECH UNIV DENMARK	14	91	6.5
UNIV BRISTOL	14	388	27.7
UNIV GHENT	14	71	5.1
UNIV OSLO	14	219	15.6
MAX PLANCK INST CHEM	13	363	27.9
UNIV BAYREUTH	13	136	10.5
WAGENINGEN UNIV	13	158	12.2
OREGON STATE UNIV	12	226	18.8
PLYMOUTH MARINE LAB	12	170	14.2
STOCKHOLM UNIV	12	180	15.0
UNIV ABERDEEN	12	63	5.3
UNIV GRONINGEN	12	107	8.9
UNIV SOUTHAMPTON	12	77	6.4
CHINESE ACAD SCI	11	95	8.6
CRANFIELD UNIV	11	47	4.3
UCL	11	96	8.7
UNIV EDINBURGH	11	245	22.3
UNIV GOTHENBURG	11	119	10.8
WOODS HOLE OCEANOGRAPHIC INST	11	566	51.5
INST MARINE RES	10	79	7.9
LUND UNIV	10	73	7.3
MAX PLANCK INST MARINE MICROBIOL	10	323	32.3
NORWEGIAN INST WATER RES	10	70	7.0
PENN STATE UNIV	10	338	33.8

OIL GAS - ROW AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
CHINESE ACAD SCI	97	302	3.1
LOUISIANA STATE UNIV	52	261	5.0
US GEOL SURVEY	51	511	10.0
PENN STATE UNIV	44	807	18.3
RUSSIAN ACAD SCI	44	176	4.0
CHINA UNIV PETR	35	29	0.8
TEXAS A&M UNIV	34	177	5.2
UNIV TOKYO	33	295	8.9
UNIV CALGARY	32	218	6.8
UNIV ALBERTA	29	134	4.6
WOODS HOLE OCEANOGRAPHIC INST	29	822	28.3
OREGON STATE UNIV	28	360	12.9
UNIV CALIF SAN DIEGO	28	504	18.0
UNIV FED RIO DE JANEIRO	28	56	2.0
UNIV WASHINGTON	28	168	6.0
UNIV WATERLOO	27	131	4.9
USDA ARS	27	230	8.5
INDIAN INST TECHNOL	25	103	4.1
NOAA	25	599	24.0
UNIV TEXAS	25	232	9.3
MCGILL UNIV	24	357	14.9
HOKKAIDO UNIV	22	130	5.9
UNIV MINNESOTA	22	296	13.5
NASA	21	320	15.2
UNIV FLORIDA	21	254	12.1
UNIV REGINA	21	27	1.3
UNIV WISCONSIN	21	798	38.0
DALHOUSIE UNIV	20	101	5.1
MIDDLE E TECH UNIV	20	90	4.5
MIT	20	419	21.0
NATL INST ADV IND SCI & TECHNOL	20	103	5.2
TOKYO INST TECHNOL	20	140	7.0
UNIV CALIF BERKELEY	20	191	9.6
UNIV HAWAII	20	296	14.8
PRINCETON UNIV	19	196	10.3
UNIV MICHIGAN	19	334	17.6
UNIV SAO PAULO	19	70	3.7
UNIV TEXAS AUSTIN	19	27	1.4
UNIV VICTORIA	19	185	9.7
COLORADO SCH MINES	18	158	8.8
GEORGIA INST TECHNOL	18	150	8.3
KOREA INST ENERGY RES	18	50	2.8
KYOTO UNIV	18	341	18.9
UNIV N CAROLINA	18	711	39.5
UNIV TORONTO	18	117	6.5
UNIV WESTERN AUSTRALIA	18	351	19.5

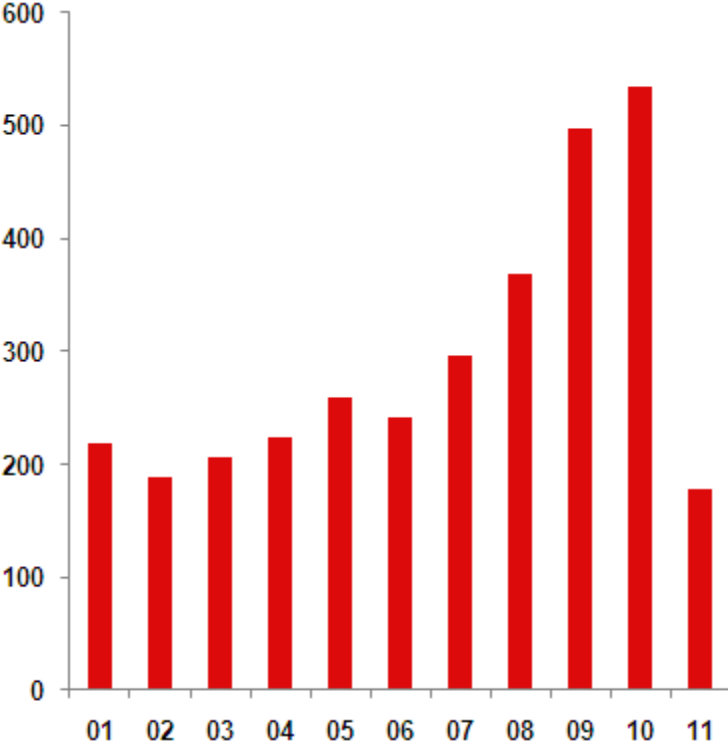
4.10 Top Authors

OIL GAS - EU INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
BOCKELEE-MORVAN, D	9	119	13.2
HYLLAND, K	9	81	9.0
WILLIAMS, P T	9	22	2.4
CROVISIER, J	8	109	13.6
DALMAZZONE, C	8	40	5.0
PARKE, R J	8	491	61.4
BIVER, N	7	103	14.7
MARTIKAINEN, P J	7	89	12.7
MEIER, S	7	115	16.4
TOLLEFSEN, K E	7	63	9.0
BELL, J G	6	246	41.0
BLODAU, C	6	71	11.8
CARROLL, J	6	51	8.5
MAGAN, N	6	57	9.5
SNAPE, C E	6	38	6.3
SUNDT, R C	6	46	7.7
TORRES, M E	6	156	26.0
ARCHER, S D	5	84	16.8
CERNICHARO, J	5	34	6.8
CRAGG, B A	5	437	87.4
ENCRENAZ, P	5	34	6.8
HERZHAFT, B	5	26	5.2
HINRICH, K U	5	186	37.2
JONSSON, G	5	84	16.8
LARTER, S R	5	45	9.0
LIS, D C	5	101	20.2
ROHL, U	5	239	47.8
SAASEN, A	5	4	0.8
SHANG, H	5	27	5.4
STEIN, R	5	45	9.0
STEINFELD, A	5	241	48.2
SUNDMACHER, K	5	19	3.8
SVARDAL, A	5	111	22.2
WILLIAMS, J	5	54	10.8
ZACHOS, J C	5	118	23.6
ZIMMERMAN, R W	5	29	5.8
ANDREAE, M O	4	36	9.0
BARBIERI, G	4	86	21.5
BENNETT, B	4	33	8.3
BENSCH, F	4	22	5.5
BOHRMANN, G	4	91	22.8
BRALOWER, T J	4	265	66.3
BRUMSACK, H J	4	67	16.8
BUTTERBACH-BAHL, K	4	32	8.0
CHRISTENSEN, T R	4	34	8.5
COLOM, P	4	102	25.5
DAMSTE, J S S	4	82	20.5
DAVIDSSON, B J R	4	59	14.8
DE GRAAUW, T	4	16	4.0

OIL GAS - ROW INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
KAISER, M J	16	11	0.7
IVANOV, M V	10	43	4.3
WANG, Y	10	189	18.9
KIM, J H	9	74	8.2
LEE, K	9	45	5.0
MORIDIS, G J	9	60	6.7
WOJTANOWICZ, A K	9	5	0.6
YOSHIDA, H	9	137	15.2
ZACHOS, J C	9	324	36.0
BIRKLE, P	8	30	3.8
BRALOWER, T J	8	415	51.9
HYNDMAN, R D	8	62	7.8
KIENE, R P	8	251	31.4
LI, J	8	62	7.8
RIEDEL, M	8	143	17.9
TORRES, M E	8	186	23.3
BOCKELEE-MORVAN, D	7	106	15.1
CROVISIER, J	7	106	15.1
DARWISH, M A	7	33	4.7
DELAUNE, R D	7	18	2.6
GUO, L J	7	281	40.1
HUSAIN, T	7	37	5.3
KANTZAS, A	7	22	3.1
MCCLEMENTS, D J	7	182	26.0
MOORE, T R	7	166	23.7
NAJJAR, R G	7	46	6.6
POPP, B N	7	126	18.0
ROSEN, M A	7	101	14.4
RUSANOV, I I	7	39	5.6
SATO, M	7	121	17.3
SCHLEICHER, D G	7	98	14.0
SPENCE, G D	7	51	7.3
TSUNOGAI, U	7	84	12.0
WANG, J	7	37	5.3
YOSHIDA, N	7	88	12.6
ZHANG, L	7	33	4.7
BAHADORI, A	6	4	0.7
BIVER, N	6	100	16.7
BLODAU, C	6	145	24.2
COLLETT, T S	6	101	16.8
DECKER, E A	6	145	24.2
DELLO RUSSO, N	6	101	16.8
DINCER, I	6	110	18.3
DONG, M Z	6	24	4.0
FIROOZABADI, A	6	13	2.2
KANEKO, H	6	36	6.0
KARGI, F	6	227	37.8
KUSUMOTO, Y	6	30	5.0
LAKE, L W	6	6	1.0

5 Growing Aquatic Products

5.1 Invention Velocity



5.2 Priority Country Analysis

PRIORITY COUNTRIES	INVENTIONS	TOTAL CITES	CITES PER INVENTION
Japan	1416	73	0.1
United States of America	1022	271	0.3
Patent Co-operation Treaty	880	68	0.1
China	756	11	0.0
Germany	314	40	0.1
Korea, Republic of	261	10	0.0
European Patent Office	218	15	0.1
Canada	107	8	0.1
United Kingdom	105	14	0.1
Australia	74	30	0.4
France	60	6	0.1
Spain	54	1	0.0
Russian Federation	44	9	0.2
Sweden	28	0	0.0
Norway	26	2	0.1
Denmark	23	1	0.0
Mexico	22	1	0.0
Taiwan	21	0	0.0
Brazil	18	0	0.0
New Zealand	18	0	0.0
Israel	14	1	0.1
Italy	13	5	0.4
Belgium	12	2	0.2
Netherlands	12	3	0.3
Austria	11	0	0.0
India	11	5	0.5
Singapore	9	1	0.1
South Africa	9	0	0.0
Ukraine	9	0	0.0
Czech Republic	8	0	0.0
Argentina	5	0	0.0
Finland	5	0	0.0
Hong Kong	5	0	0.0
Malaysia	5	0	0.0
Portugal	5	0	0.0
African Regional Intellectual Property Org	3	0	0.0
Poland	3	0	0.0
Switzerland	3	0	0.0
Bulgaria	2	0	0.0
Chile	2	0	0.0
Greece	2	0	0.0
Republic of Moldova	2	0	0.0
Romania	2	0	0.0
Colombia	1	0	0.0
Croatia	1	0	0.0
Ecuador	1	0	0.0
Egypt	1	0	0.0
Eurasian Patent Organization	1	0	0.0
Hungary	1	0	0.0
Iceland	1	0	0.0
Soviet Union	1	0	0.0

5.3 Top Assignees

TOP ASSIGNEES	TOTAL
Bayer Group	64
Mitsubishi Group of Companies	57
CHUGOKU TORYO KK	54
Chinese Academy of Sciences	51
Nippon	47
Sumitomo group	42
SHINETSU CHEM IND CO LTD	25
UNIV CHINA	24
DAINIPPON TORYO KK	23
NIPPON SODA CO	23
XINAO SCI&TECHNOLOGY DEV CO LTD	23
NIPPON OILS & FATS CO LTD	20
PENTEL KK	19
CHUGOKU MARINE PAINTS LTD	18
KAIYO BIOTECHNOLOGY KENKYUSHO KK	18
UNIV DALIAN	18
KANSAI PAINT CO LTD	17
BASF	16
BUCKMAN LAB INT INC	16
HITACHI	16
NITTO KASEI CO LTD	15
Panasonic Corp	14
Toshiba	14
UNIV QINGHUA	14
ROHM & HAAS CO	13
SOLAZYME INC	13
YOSHITOMI FINE CHEM KK	13
DAIICHI SEIMO KK	12
TORAY IND INC	12
UNIV NANJING	12
CREAVIS GES TECHNOLOGIE & INNOVATION MBH	11
GENERAL ELECTRIC CO	11
KURARAY CO LTD	11
DAINIPPON INK & CHEM INC	10
HOKKO CHEM IND CO LTD	10
TOYOBO KK	10
UNIV CALIFORNIA	10
UNIV XIAMEN	10

5.4 Top EU Academic Institutes

GROWING ACQUATIC PRODUCTS -EU ACADEMIC INSTITUTES	INVENTIONS
FRAUNHOFER GES FOERDERUNG ANGEWAN	6
CONSEJO SUP INVESTIG CIENTIFICAS	3
CNRS CENT NAT RECH SCI	2
UNIV COMPLUTENSE MADRID	2
UNIV HULL	2
UNIV LIBRE BRUXELLES	2
UNIV SEVILLA	2
ALCON INC	1
CAJA RURAL INTERMEDITERRANEA SCC	1
CENT ETUD & VALORISATION ALGUES	1
CENT RES INST ELECTRIC POWER IND	1
CRF SCPA	1
EIDGENOESSISCHE TECH HOCHSCHULE ZUE	1
HOCHSCHULE BREMEN	1
STIFTUNG WEGENER INST POLAR&MEERSF	1
UNIV ALBERT-LUDWIGS	1
UNIV ASTON	1
UNIV BEN-GURION NEGEV	1
UNIV CRANFIELD	1
UNIV FREIBERG TECH BERGAKADEMIE	1
UNIV JIHOCE SKA V CESKYCH BUDEJOVICI	1
UNIV KAMCHATSKII TECH	1
UNIV KRASY	1
UNIV LIEGE	1
UNIV MADRID POLITECNICA	1
UNIV MARIISK	1
UNIV MURMANSK TECH	1
UNIV NEWCASTLE	1
UNIV NORTHEASTERN	1
UNIV QINGHUA	1
UNIV RHEINISCHE FRIEDRICH WILHELMS BO	1
UNIV SABANCI	1
UNIV STRATHCLYDE	1
UNIV VIGO	1
VORON TECHN ACAD	1

5.5 Top ROW Academic Institutes

GROWING ACQUATIC PRODUCTS -ROW ACADEMIC INSTITUTES	INVENTIONS
Chinese Academy of Sciences	51
UNIV CHINA	24
UNIV DALIAN	18
UNIV QINGHUA	14
UNIV NANJING	12
UNIV CALIFORNIA	10
UNIV XIAMEN	10
UNIV COLORADO	7
UNIV FLORIDA	6
UNIV NINGBO	6
Shanghai Ocean University	5
UNIV BEIJING	5
UNIV BEN-GURION NEGEV	5
UNIV FUDAN	5
UNIV ZHEJIANG OCEAN	5
CHINESE ACAD FISHERY SCI	4
UNIV GUANGDONG OCEAN	4
UNIV HANYANG	4
UNIV HOKKAIDO	4
UNIV KWANDONG IND FOUNDATION	4
UNIV NORTHWESTERN	4
UNIV PUKYONG NAT	4
UNIV SICHUAN	4
UNIV TEXAS	4
UNIV ZHEJIANG	4
CENT RES INST ELECTRIC POWER IND	3
CHINESE ACAD TROPICAL AGRIC TROPICAL BIOTECHNO	3
CSIC NO 725 RES & DEV INST	3
HARBIN INST TECHNOLOGY	3
UNIV ARIZONA	3
UNIV CLEMSON	3
UNIV DONGHUA	3
UNIV DUKE	3
UNIV FUJIAN	3
UNIV JIANGNAN	3
UNIV KANGNUNG WONJU	3
UNIV KONKUK	3
UNIV MARYLAND	3
UNIV SHANGHAI JIAOTONG	3
UNIV SOUTH CHINA TECHNOLOGY	3
UNIV WASHINGTON STATE	3

5.6 Cites per Inventions Analysis

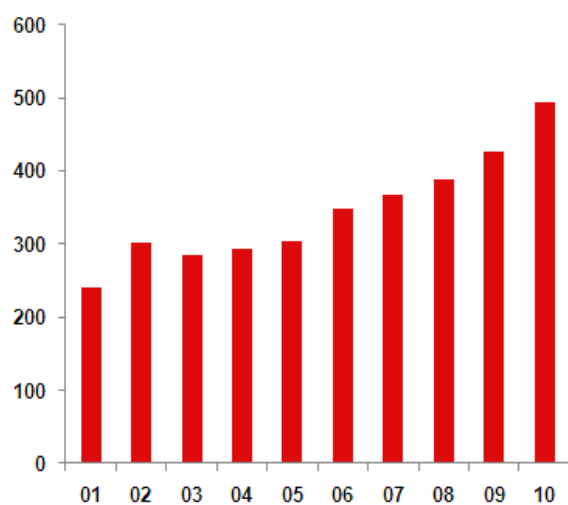
GROWING ACQUATIC PRODUCTS ACADEMIC INSTITUTES	INVENTIONS	TOTAL CITES	CITES PER PATENT
Chinese Academy of Sciences	55	1	0.0
UNIV CHINA	24	2	0.1
UNIV DALIAN	18	0	0.0
UNIV QINGHUA	17	2	0.1
UNIV CALIFORNIA	14	16	1.1
UNIV NANJING	12	0	0.0
UNIV COLORADO	11	18	1.6
FRAUNHOFER GES FOERDERUNG ANGEWANDTEN	10	23	2.3
UNIV BEN-GURION NEGEV	10	18	1.8
UNIV XIAMEN	10	1	0.1
UNIV FLORIDA	9	4	0.4
CENT RES INST ELECTRIC POWER IND	8	2	0.3
UNIV ARIZONA	6	30	5.0
UNIV QUEENSLAND	6	12	2.0
UNIV NINGBO	6	1	0.2
UNIV HULL	6	0	0.0
UNIV LIBRE BRUXELLES	6	0	0.0
UNIV NORTHWESTERN	6	0	0.0
UNIV TEXAS	5	5	1.0
CNRS CENT NAT RECH SCI	5	4	0.8
UNIV NORTHEASTERN	5	4	0.8
CONSEJO SUP INVESTIG CIENTIFICAS	5	2	0.4
UNIV WASHINGTON STATE	5	2	0.4
UNIV DUKE	5	1	0.2
UNIV HOKKAIDO	5	1	0.2
Shanghai Ocean University	5	0	0.0
UNIV BEIJING	5	0	0.0
UNIV COMPLUTENSE MADRID	5	0	0.0
UNIV FUDAN	5	0	0.0
UNIV ZHEJIANG OCEAN	5	0	0.0
UNIV CLEMSON	4	13	3.3
UNIV SUNGKYUNKWAN	4	6	1.5
UNIV MARYLAND	4	2	0.5
UNIV WAKE FOREST SCHOOL MEDICINE	4	2	0.5
UNIV WASHINGTON	4	2	0.5
UNIV HANYANG	4	1	0.3
CHINESE ACAD FISHERY SCI	4	0	0.0
UNIV GUANGDONG OCEAN	4	0	0.0
UNIV INCHEON IND ACAD COOP FOUND	4	0	0.0
UNIV KWANDONG IND FOUNDATION	4	0	0.0
UNIV LAVAL	4	0	0.0
UNIV PUKYONG NAT	4	0	0.0
UNIV SICHUAN	4	0	0.0
UNIV ZHEJIANG	4	0	0.0
NDSU RES FOUND	3	8	2.7
UNIV KAGOSHIMA	3	3	1.0
UNIV KONKUK	3	1	0.3

5.7 Inventor Analysis

GROWING ACQUATIC PRODUCTS -EU ACADEMIC INVENTORS	INVENTIONS
Acien Fernandez F G	2
Anderson A	2
Anderson A J	2
Braekman J	2
Braekman J C	2
Cordero B F	2
Ferrari G	2
Gutsche B	2
Kanagachandran K	2
Kugler M	2
Kunisch F	2
Martin L	2
Molina Grima E	2
Obraztsova I	2
Plehiers M	2
Ratledge C	2
Troesch W	2
Vos M	2
Weiss A	2
Aberle L	1
Abramova E V	1
Acatay K	1
Acatay K S U	1
Acatay K U	1
Acien F F G	1
Acien Fernandez F	1
Aduriz G	1
Aguado M A	1
Aguado Martinez A	1
Agudo Martinez A	1
Anderson J	1
Andreev A A	1
Andreeva L G	1
Apfelbacher A	1
Arad S	1
Arduriz G	1
Bardor M	1
Barthlott W	1
Beiras Garcia-Sabell R	1
Bellas Bereijo J D	1
Bernard D	1
Bertau M	1
Berthold R	1
Bilhelreum B	1
Blanch Manzano G P	1
Blom J	1
Boriseu Pelrikseu S	1
Born E	1
Brennan F	1
Brucker F	1

GROWING ACQUATIC PRODUCTS -ROW ACADEMIC INVENTORS	INVENTIONS
Zhang Z	21
Li Y	16
Liu Y	13
Wang J	13
Hu H	10
Wang Z	10
Zhang X	10
Li C	9
Li X	9
Wang X	9
Xu H	9
Yang H	8
Yu L	8
Zhang W	8
Chen S	7
Jiang X	7
Shen Y	7
Wang H	7
Chen M	6
Cong W	6
Huang J	6
Li S	6
Babbitt G R	5
Chen W	5
Gao Z	5
Hu Z	5
Huang H	5
Jin M	5
Liu B	5
Liu H Cn	5
Liu J	5
Liu T	5
Mao Y	5
Wang G	5
Wang Y	5
Yan X	5
Yu X	5
Zhou Y	5
Bahng S W	4
Baney R H	4
Bang S W	4
Brennan A B	4
Chen Y	4
Chen Y Cn	4
Choi J H	4
Han M S	4
He P	4
He W	4
Kim B H	4
Kim H	4

5.8 Publication Rate & Top Author Affiliation Country



COUNTRY	PAPERS	TOTAL CITES	CITES PER PAPER
USA	779	4620	5.9
Peoples R China	349	866	2.5
Germany	324	1910	5.9
Japan	265	1322	5.0
Australia	258	1499	5.8
England	222	1953	8.8
Spain	220	1092	5.0
France	198	1193	6.0
Canada	136	1043	7.7
India	131	480	3.7
Brazil	130	380	2.9
Italy	125	797	6.4
Netherlands	122	870	7.1
Sweden	122	854	7.0
Portugal	117	726	6.2
Russia	89	264	3.0
Mexico	88	458	5.2
South Korea	84	417	5.0
Denmark	81	834	10.3
New Zealand	69	606	8.8
Scotland	62	470	7.6
Norway	59	489	8.3
Switzerland	55	576	10.5
Chile	54	507	9.4
Taiwan	53	198	3.7
Belgium	52	199	3.8
Israel	52	488	9.4
Turkey	45	503	11.2
Finland	43	402	9.3
Poland	43	229	5.3
Argentina	42	207	4.9
Czech Republic	41	235	5.7
Greece	35	315	9.0
Malaysia	25	98	3.9
South Africa	25	106	4.2
Wales	24	527	22.0
Austria	23	127	5.5
Thailand	23	151	6.6
Egypt	22	46	2.1

5.9 Top Affiliations

GROWING ACQUATIC PRODUCTS - EU AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
CSIC	47	614	13.1
IFREMER	45	408	9.1
Univ Gothenburg	37	313	8.5
Alfred Wegener Inst Polar & Marine Res	36	428	11.9
Univ Aveiro	32	155	4.8
Stockholm Univ	30	306	10.2
CNRS	28	375	13.4
Univ Porto	28	244	8.7
Univ Kiel	24	218	9.1
Univ Coimbra	23	237	10.3
Univ Copenhagen	22	290	13.2
CNR	20	244	12.2
Natl Environm Res Inst	20	156	7.8
Univ Wageningen & Res Ctr	19	161	8.5
Univ Portsmouth	18	205	11.4
Wageningen Univ	18	107	5.9
Univ Algarve	17	172	10.1
Univ Plymouth	17	211	12.4
Plymouth Marine Lab	16	266	16.6
Univ Paris 06	16	176	11.0
Univ Rostock	16	157	9.8
Univ Bremen	15	130	8.7
Univ Cadiz	15	80	5.3
Acad Sci Czech Republic	14	18	1.3
Univ Queensland	14	177	12.6
Univ S Bohemia	14	93	6.6
Univ Almeria	13	136	10.5
Univ Bologna	13	114	8.8
Univ Granada	13	125	9.6
Abo Akad Univ	12	177	14.8
Acad Sci Czech Republ	12	160	13.3
Roskilde Univ Ctr	12	161	13.4
Univ Amsterdam	12	85	7.1
Univ Malaga	12	123	10.3
Univ Nantes	12	87	7.3
Uppsala Univ	12	150	12.5
Netherlands Inst Ecol	11	189	17.2
Univ Athens	11	90	8.2
Univ Austral Chile	11	162	14.7
Univ Barcelona	11	108	9.8
Univ Birmingham	11	257	23.4
Univ Helsinki	11	91	8.3
Univ Ioannina	11	238	21.6
Univ Liverpool	11	213	19.4
Nat Hist Museum	10	47	4.7
Netherlands Inst Sea Res	10	279	27.9
Swiss Fed Inst Technol	10	157	15.7
Tech Univ Denmark	10	64	6.4

GROWING ACQUATIC PRODUCTS - ROW AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
Chinese Acad Sci	101	304	3.0
Russian Acad Sci	56	88	1.6
Univ Tokyo	39	199	5.1
Ocean Univ China	36	51	1.4
Univ Queensland	28	286	10.2
Univ Tasmania	28	332	11.9
Univ Sao Paulo	26	121	4.7
Kyoto Univ	24	234	9.8
James Cook Univ N Queensland	23	379	16.5
Univ New S Wales	22	165	7.5
Australian Inst Marine Sci	21	604	28.8
Hong Kong Univ Sci & Technol	19	150	7.9
Monash Univ	19	110	5.8
Univ Calif Santa Barbara	19	428	22.5
Univ Hong Kong	19	231	12.2
NOAA	18	100	5.6
Univ Calif Davis	18	193	10.7
Univ Fed Fluminense	18	134	7.4
Univ Minnesota	18	195	10.8
Oregon State Univ	17	125	7.4
Univ Hawaii	17	226	13.3
Univ Maryland	17	440	25.9
Univ Sydney	17	136	8.0
Univ Washington	17	188	11.1
Xiamen Univ	17	33	1.9
Consejo Nacl Invest Cient & Tecn	16	39	2.4
Univ Austral Chile	16	206	12.9
Univ Nacl Autonoma Mexico	16	91	5.7
James Cook Univ	15	83	5.5
Natl Inst Oceanog	15	113	7.5
S China Univ Technol	15	49	3.3
Tel Aviv Univ	15	146	9.7
Tohoku Univ	15	178	11.9
Univ Calif Berkeley	15	318	21.2
Univ N Carolina	15	270	18.0
Cawthron Inst	14	100	7.1
Michigan State Univ	14	174	12.4
Natl Taiwan Univ	14	58	4.1
Tsinghua Univ	14	85	6.1
Univ Alabama	14	191	13.6
Univ Fed Rio de Janeiro	14	151	10.8
Univ Fed Santa Catarina	14	12	0.9
Univ Florida	14	275	19.6
Univ Quebec	14	80	5.7
Ben Gurion Univ Negev	13	145	11.2
City Univ Hong Kong	13	134	10.3
C SIRO	13	332	25.5
Osaka City Inst Publ Hlth & Environm Sci	13	121	9.3

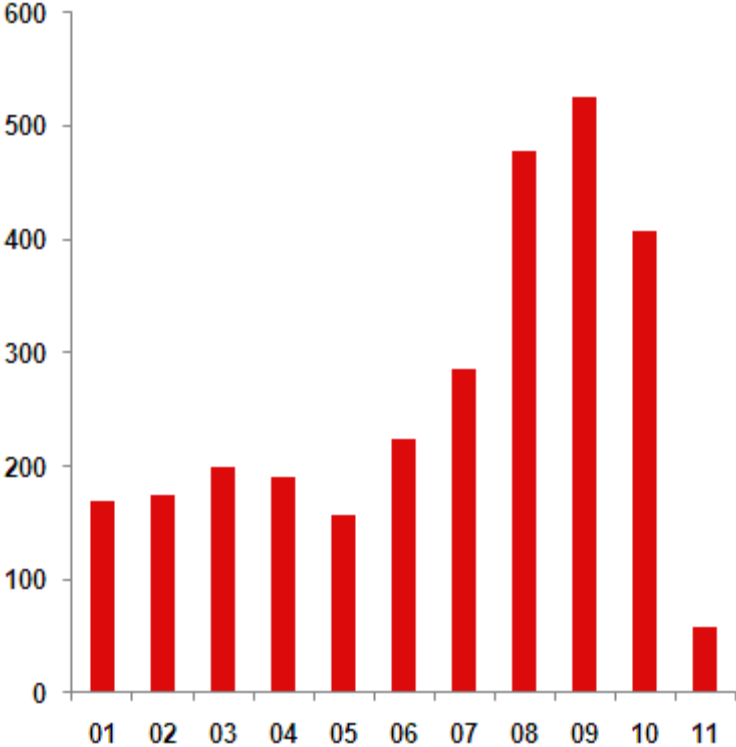
5.10 Top Authors

GROWING ACQUATIC PRODUCTS - EU INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
Wijffels, R H	17	118	6.9
Wiencke, C	14	241	17.2
Hellio, C	12	245	20.4
Albanis, T A	11	238	21.6
Lubian, L M	11	83	7.5
Wahl, M	11	54	4.9
Karsten, U	10	176	17.6
Pardal, M A	10	203	20.3
Barroso, C M	9	101	11.2
Boersma, M	9	266	29.6
Lambropoulou, D A	9	207	23.0
Moreno-Garrido, I	9	78	8.7
Readman, J W	9	190	21.1
Sakkas, V A	9	164	18.2
Vasconcelos, M T S D	9	76	8.4
Callow, M E	8	243	30.4
Eklund, B	8	64	8.0
Gomez, I	8	94	11.8
Sommer, U	8	226	28.3
Thomas, K V	8	333	41.6
Vergara, J J	8	75	9.4
Andersen, T	7	132	18.9
Bourgougnon, N	7	180	25.7
Callow, J A	7	243	34.7
Czerpak, R	7	4	0.6
Escher, B I	7	64	9.1
Figuroa, F L	7	84	12.0
Janssen, M	7	89	12.7
Jormalainen, V	7	146	20.9
Leal, M F C	7	68	9.7
Pavoni, B	7	65	9.3
Perez-Llorens, J L	7	75	10.7
Posten, C	7	55	7.9
Turner, A	7	28	4.0
Aguilera, J	6	141	23.5
Altenburger, R	6	77	12.8
Bajguz, A	6	43	7.2
Bellas, J	6	88	14.7
Blasco, J	6	61	10.2
Borum, J	6	93	15.5
Candolin, U	6	57	9.5
Cid, A	6	76	12.7
Day, J G	6	13	2.2
Eisentraeger, A	6	58	9.7
Gaspar, M B	6	35	5.8
Goncalves, F	6	18	3.0
Hansen, P J	6	161	26.8
Hessen, D O	6	122	20.3
Huovinen, P	6	78	13.0

GROWING ACQUATIC PRODUCTS - ROW INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
Qian, P Y	18	112	6.2
Bashan, Y	17	223	13.1
Harino, H	17	122	7.2
de Nys, R	15	120	8.0
Arai, T	14	105	7.5
Ohji, M	14	105	7.5
Tang, X X	14	36	2.6
de-Bashan, L E	13	147	11.3
Gao, K S	12	25	2.1
Steinberg, P D	12	117	9.8
Miyazaki, N	11	121	11.0
Okamura, H	10	274	27.4
Pereira, R C	10	54	5.4
Chen, F	9	168	18.7
Chen, P	9	17	1.9
Costa, J A V	9	45	5.0
da Gama, B A P	9	54	6.0
McCook, L J	9	223	24.8
Ruan, R	9	10	1.1
Shin, H W	9	43	4.8
Tanabe, S	9	185	20.6
Wang, Y	9	43	4.8
Xu, Y	9	44	4.9
Chen, C Y	8	45	5.6
Coutinho, R	8	64	8.0
Danquah, M K	8	18	2.3
Gladyshev, M I	8	46	5.8
Lee, J	8	43	5.4
Takahashi, S	8	126	15.8
Titlyanov, E A	8	45	5.6
Zhang, P Y	8	28	3.5
Amsler, C D	7	43	6.1
Borowitzka, M A	7	59	8.4
Colepiccolo, P	7	58	8.3
Dong, S L	7	49	7.0
Forrest, B M	7	17	2.4
Gomez, I	7	77	11.0
Hernandez, J P	7	115	16.4
Liu, Y	7	70	10.0
Melis, A	7	116	16.6
Urabe, J	7	150	21.4
Venugopalan, V P	7	41	5.9
Voltolina, D	7	35	5.0
Wang, L	7	13	1.9
Wiencke, C	7	96	13.7
Wu, Q Y	7	80	11.4
Yakovleva, I M	7	48	6.9
Yu, J	7	28	4.0
Zou, D H	7	7	1.0

6 High Value

6.1 Invention Velocity



6.2 Priority Country Analysis

PRIORITY COUNTRIES	INVENTIONS	TOTAL CITES	CITES PER INVENTION
JAPAN	1181	69	0.1
PATENT CO-OPERATION TREA	696	53	0.1
CHINA	570	3	0.0
UNITED STATES OF AMERICA	563	128	0.2
RUSSIAN FEDERATION	270	3	0.0
KOREA, REPUBLIC OF	269	24	0.1
EUROPEAN PATENT OFFICE	162	18	0.1
GERMANY	123	6	0.0
FRANCE	99	21	0.2
UNITED KINGDOM	59	17	0.3
AUSTRALIA	42	3	0.1
SPAIN	33	3	0.1
CANADA	21	5	0.2
NORWAY	14	0	0.0
DENMARK	13	1	0.1
BRAZIL	12	0	0.0
ITALY	12	0	0.0
NEW ZEALAND	11	1	0.1
TAIWAN	10	2	0.2
FINLAND	9	3	0.3
SWEDEN	9	0	0.0
ISRAEL	7	9	1.3
IRELAND	5	2	0.4
AUSTRIA	3	1	0.3
CHILE	3	0	0.0
ESTONIA	3	0	0.0
MALAYSIA	3	2	0.7
MEXICO	3	0	0.0
POLAND	3	0	0.0
SOUTH AFRICA	3	0	0.0
SWITZERLAND	3	0	0.0
ARGENTINA	2	0	0.0
ICELAND	2	0	0.0
UKRAINE	2	0	0.0
CZECH REPUBLIC	1	0	0.0
EURASIAN PATENT ORGANIZA	1	0	0.0
GREECE	1	0	0.0
HUNGARY	1	0	0.0
INDIA	1	0	0.0
SINGAPORE	1	0	0.0
SLOVAKIA	1	0	0.0

6.3 Top Assignees

TOP ASSIGNEES	TOTAL
UNIV KANGNUNG WONJU	28
L'OREAL SA	21
NOEVIR KK	21
NESTLE SA	18
DOKURITSU GYOSEI HOJIN SANGYO GIJUTSU SO	17
HUMAN GENOME SCI INC	17
KAO CORP	16
LION CORP	14
ASAHI KASEI KK	12
GUANGZHOU TIANBAO SONGYUAN BIOLOGY SCI &	12
DAINIPPON INK & CHEM INC	11
FUJI FILM CORP	10
MITSUBISHI GROUP OF COMPANIES	10
TOYO SHINYAKU KK	10
BASF	9
IAMS CO	9
ICHIMARU PHARCOS INC	9
KANEKA CORP	9
NIZHEGOROD EPIDEMICS MICROBIOLOG INST	9
UNIV PUKYONG NAT	9
YAKULT HONSHA KK	9
CNRS CENT NAT RECH SCI	8
KOREA RES INST BIOSCIENCE & BIOTECHNOLOG	8
UNIV KYUSHU	8
YAESU SUISAN KAGAKU KOGYO KK	8
CHINESE ACADEMY OF SCIENCES	7
NAGASE SANGYO KK	7
NARISU KESHOSHIN KK	7
NUTRICIA NV	7
PROCTER & GAMBLE CO	7
SANEIGEN FFI KK	7
SHISEIDO CO LTD	7
TRANSGENE SA	7
UNIV BASHKIR MED	7

6.4 Top EU Academic Institutes

HIGH VALUE -EU ACADEMIC INSTITUTES	INVENTIONS
CNRS CENT NAT RECH SCI	7
UNIV BASHKIR MED	7
CONSEJO SUP INVESTIG CIENTIFICAS	5
IMPERIAL COLLEGE INNOVATIONS LTD	3
ROYAL HOLLOWAY & BEDFORD NEW COLLEGE	3
ST PETERSBURG MED ACAD	3
UNIV MALAGA	3
UNIV VLADIVOSTOK MED	3
ASTRAKHAN MED ACAD	2
FRAUNHOFER GES FOERDERUNG ANGEWANDTE	2
MILITARY MED ACAD	2
ORENBURG MED ACAD	2
UNIV CALIFORNIA	2
UNIV GENT	2
UNIV GREIFSWALD	2
UNIV HOKKAIDO	2
UNIV HULL	2
UNIV NOTTINGHAM	2
UNIV STAVROPOL	2
VORON BURDENKO MED ACAD	2
ALCON INC	1
CENT ETUD & VALORISATION ALGUES	1
CHITA MED ACAD	1
INRA INST NAT RECH AGRONOMIQUE	1
INST IMMUNOLOGII TERAPII DO SWIADCZAL	1
INST SUPERIORE DI SANITA	1
IVAN MED ACAD	1
MILANO POLITECNICO	1
N OSETIA MED ACAD	1
NIZHEGOROD MED ACAD	1
PERM MED ACAD	1
POST-DIPLOMA TRAINING MED ACAD	1
QUEEN ELIZABETH COLLEGE DUBLIN	1
RUSSIAN ACADEMY OF SCIENCES	1
UNIV ASTRAKHAN	1
UNIV AUTONOMA MADRID	1
UNIV BAYERISCHE JULIUS MAXIMILIANS WU	1
UNIV CENT HOSPITALIER D'ANGERS	1
UNIV COLLEGE CORK NAT UNIV IRELAND	1
UNIV COLLEGE LONDON	1
UNIV DI ROMA TOR VERGATA	1
UNIV FAR E SUPPLY NETWORK	1
UNIV GLASGOW	1

6.5 Top ROW Academic Institutes

HIGH VALUE -ROW ACADEMIC INSTITUTES	INVENTIONS
UNIV KANGNUNG WONJU	28
UNIV PUKYONG NAT	9
UNIV KYUSHU	8
CHINESE ACADEMY OF SCIENCES	7
UNIV DALIAN	6
UNIV HOKKAIDO	6
UNIV CALIFORNIA	5
UNIV HIROSHIMA	5
UNIV JILIN	5
UNIV NANJING	5
UNIV SHANDONG	5
CNRS CENT NAT RECH SCI	4
UNIV OKAYAMA	4
UNIV SILLA	4
UNIV CHINA	3
UNIV JIANGNAN	3
UNIV KUMAMOTO	3
UNIV KYUNGPOOK NAT IND ACAD COOP FOUND	3
UNIV MOKPO	3
UNIV NAGASAKI	3
UNIV PENNSYLVANIA	3
UNIV SECOND MILITARY MEDICAL PLA	3
UNIV TOKYO	3
IMPERIAL COLLEGE INNOVATIONS LTD	2
UNIV CENT SOUTH	2
UNIV EMORY	2
UNIV GUANGDONG OCEAN	2
UNIV GYEONGSANG IND ACAD COOP FOUND	2
UNIV HUAZHONG SCI & TECHNOLOGY	2
UNIV JOHNS HOPKINS	2
UNIV KAGOSHIMA	2
UNIV KWANDONG IND FOUNDATION	2
UNIV KYUNGHEE	2
UNIV MASSACHUSETTS	2
UNIV MIAMI	2
UNIV MONTANA STATE	2
UNIV NEW YORK STATE	2
UNIV NINGBO	2
UNIV NIPPON	2
UNIV NORTHWEST	2
UNIV PLA THIRD MILITARY MEDICAL	2
UNIV PUTRA MALAYSIA	2
UNIV RAMOT AT TEL AVIV LTD	2
UNIV RYUKYU	2
UNIV SAHMYOOK IND ACADEMIC COOP FOUND	2
UNIV TOKUSHIMA NAT UNIV CORP	2
UNIV WEIHAI	2
UNIV ZHEJIANG	2

6.6 Cites per Inventions Analysis

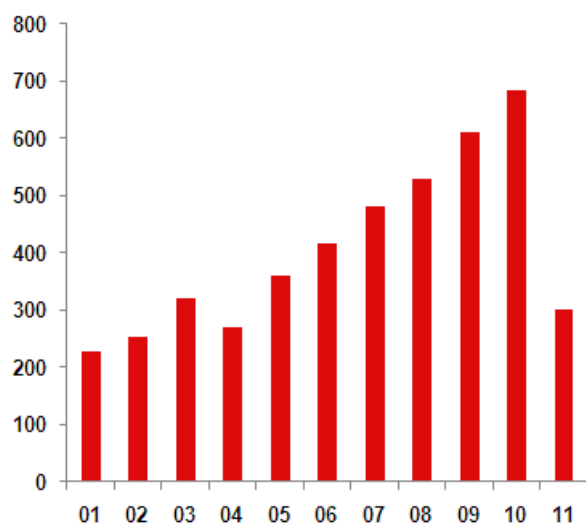
HIGH VALUE ACADEMIC INSTITUTES	INVENTIONS	TOTAL CITES	CITES PER PATENT
UNIV KANGNUNG WONJU	28	0	0.0
UNIV PUKYONG NAT	9	0	0.0
CNRS CENT NAT RECH SCI	8	5	0.6
UNIV KYUSHU	8	0	0.0
CHINESE ACADEMY OF SCIENCES	7	0	0.0
UNIV BASHKIR MED	7	0	0.0
UNIV DALIAN	6	0	0.0
UNIV HOKKAIDO	6	1	0.2
CONSEJO SUP INVESTIG CIENTIFICAS	5	3	0.6
UNIV CALIFORNIA	5	0	0.0
UNIV HIROSHIMA	5	1	0.2
UNIV JILIN	5	0	0.0
UNIV NANJING	5	0	0.0
UNIV SHANDONG	5	0	0.0
UNIV OKAYAMA	4	3	0.8
UNIV SILLA	4	0	0.0
IMPERIAL COLLEGE INNOVATIONS LTD	3	7	2.3
ROYAL HOLLOWAY & BEDFORD NEW COLLEGE	3	6	2.0
ST PETERSBURG MED ACAD	3	0	0.0
UNIV CHINA	3	0	0.0
UNIV JIANGNAN	3	2	0.7
UNIV KUMAMOTO	3	0	0.0
UNIV KYUNGPOOK NAT IND ACAD COOP FOUND	3	0	0.0
UNIV MALAGA	3	0	0.0
UNIV MOKPO	3	0	0.0
UNIV NAGASAKI	3	0	0.0
UNIV PENNSYLVANIA	3	2	0.7
UNIV SECOND MILITARY MEDICAL PLA	3	0	0.0
UNIV TOKYO	3	5	1.7
UNIV VLADIVOSTOK MED	3	0	0.0
ASTRAKHAN MED ACAD	2	0	0.0
FRAUNHOFER GES FOERDERUNG ANGEWANDTEN	2	0	0.0
MILITARY MED ACAD	2	0	0.0
ORENBURG MED ACAD	2	0	0.0
UNIV BEN-GURION NEGEV	2	0	0.0
UNIV CENT SOUTH	2	0	0.0
UNIV EMORY	2	0	0.0
UNIV GENT	2	2	1.0
UNIV GREIFSWALD	2	0	0.0
UNIV GUANGDONG OCEAN	2	0	0.0
UNIV GYEONGSANG IND ACAD COOP FOUND	2	0	0.0
UNIV HUAZHONG SCI & TECHNOLOGY	2	0	0.0
UNIV HULL	2	0	0.0
UNIV JOHNS HOPKINS	2	6	3.0
UNIV KAGOSHIMA	2	0	0.0
UNIV KWANDONG IND FOUNDATION	2	0	0.0

6.7 Inventor Analysis

HIGH VALUE -EU ACADEMIC INVENTORS	INVENTIONS
AGUILERA ARJONA J	3
DE LA COBA LUQUE F	3
LOPEZ FIGUEROA F	3
MEDVEDEV YU A	3
AFANASEV S S	2
ALESHKIN V A	2
ANDRUSENKO S F	2
ATKIN S	2
ATKIN S L	2
BECKETT S	2
BECKETT S T	2
CUTTING S M	2
DOBRI SA V P	2
GISMATOV R KH	2
JUELICH W	2
KHISMATULLINA Z R	2
KUNIZHEV S M	2
LAZHENTSEVA L YU	2
LINDEQUIST U	2
LOBZIN YU V	2
MACKENZIE G	2
OGARKOV P I	2
OSMOLOVSKII S K	2
PETROV L N	2
PLECHEV V V	2
RUBALSKII E O	2
RUBALSKII O V	2
SHULGINA L V	2
TSYGAN V N	2
WELZEL H	2
ZHOGOLEV S D	2
ADJALI O	1
ADJALI O L C D	1
ALEKSANYAN I YU	1
ALI S	1
ALI S I C S O	1
ALLGAYER H	1
ALSYNBAEV M M	1
ALYAUTDINA O S	1
AMENDOLA S	1
AMMENDOLA S	1
ANDRE V	1
ANDREEV A V	1
ANIKHOVSKAYA I A	1
ARANEGA JIMENEZ A	1

HIGH VALUE -ROW ACADEMIC INVENTORS	INVENTIONS
KIM O	19
CHOI Y	18
KIM G	14
CHO S	13
CHOI J	13
EO M	12
HEO G	11
MEYUNG HEE U	10
JO S	9
ZHANG C	9
JO S Y	8
CHOI J W	7
CHOI Y S	7
KIM O S	7
LEE S J	7
ZHANG Y	7
CAI E	6
GU KWON J	6
HYEON HA W	6
JIN CHOI H	6
JU LEE S	6
KIM S	6
KWON S	6
LEE S	6
MEYUNG H U	6
SEOK CHOI Y	6
SEON KIM O	6
ZHENG Y	6
CHOI H J	5
HA W H	5
KIM J	5
KWON J G	5
ZHANG L	5
CHOI I	4
GU X	4
KATAKURA Y	4
KIM K	4
LI J	4
LI L	4
MU J	4
SHIRAHATA S	4
TERUYA K	4
WANG J	4
WANG Y	4
ZHANG Q	4

6.8 Publication Rate & Top Author Affiliation Country



COUNTRY	PAPERS	TOTAL CITES	CITES PER PAPER
USA	1461	12915	8.8
FRANCE	362	2244	6.2
ENGLAND	315	3222	10.2
GERMANY	283	2760	9.8
CANADA	258	2382	9.2
PEOPLES R CHINA	249	1180	4.7
JAPAN	236	917	3.9
AUSTRALIA	228	1925	8.4
ITALY	195	865	4.4
SPAIN	188	1337	7.1
INDIA	158	671	4.2
SOUTH KOREA	140	585	4.2
BRAZIL	130	1292	9.9
NETHERLANDS	115	1550	13.5
SCOTLAND	103	1605	15.6
PORTUGAL	101	417	4.1
DENMARK	78	1375	17.6
BELGIUM	77	877	11.4
SWEDEN	77	929	12.1
NORWAY	70	847	12.1
ISRAEL	62	577	9.3
SOUTH AFRICA	56	412	7.4
NEW ZEALAND	52	403	7.8
TAIWAN	52	222	4.3
ARGENTINA	48	372	7.8
RUSSIA	47	229	4.9
TURKEY	44	168	3.8
SWITZERLAND	43	984	22.9
IRELAND	42	425	10.1
MEXICO	41	308	7.5
GREECE	40	158	4.0
FINLAND	35	262	7.5
POLAND	35	218	6.2
CHILE	32	267	8.3
WALES	32	677	21.2
AUSTRIA	29	204	7.0
NORTH IRELAND	29	262	9.0
CROATIA	25	147	5.9
THAILAND	25	132	5.3
SINGAPORE	24	185	7.7
ROMANIA	22	49	2.2
CZECH REPUBLIC	21	100	4.8

6.9 Top Affiliations

HIGH VALUE - EU AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
IFREMER	47	413	8.8
UNIV PARIS 06	44	450	10.2
CSIC	43	793	18.4
CNRS	41	460	11.2
UNIV MINHO	36	241	6.7
TECH UNIV DENMARK	33	1024	31.0
INRA	29	429	14.8
CNR	28	184	6.6
UNIV BIRMINGHAM	24	460	19.2
UNIV SOUTHAMPTON	22	579	26.3
PLYMOUTH MARINE LAB	21	519	24.7
UNIV COPENHAGEN	21	119	5.7
UNIV PLYMOUTH	21	330	15.7
INST PASTEUR	20	497	24.9
UNIV GHENT	20	139	7.0
ALFRED WEGENER INST POLAR & MARINE RES	18	519	28.8
UNIV GLASGOV	18	459	25.5
UNIV GOTHENBURG	18	139	7.7
UNIV BERGEN	17	407	23.9
UNIV NEW S WALES	17	285	16.8
UNIV ROUEN	17	180	10.6
UNIV AMSTERDAM	16	152	9.5
UNIV PORTO	16	50	3.1
UNIV ABERDEEN	15	210	14.0
UNIV COMPLUTENSE MADRID	15	174	11.6
UNIV HELSINKI	14	75	5.4
UNIV OSLO	14	105	7.5
UNIV AVEIRO	13	74	5.7
UNIV GRONINGEN	13	186	14.3
UNIV MONTPELLIER 2	13	182	14.0
UNIV NOTTINGHAM	13	365	28.1
NETHERLANDS INST ECOL	12	410	34.2
NORWEGIAN UNIV SCI & TECHNOL	12	157	13.1
UCL	12	161	13.4
UNIV BRETAGNE OCCIDENTALE	12	114	9.5
UNIV COLL DUBLIN	12	50	4.2
UNIV COLOGNE	12	84	7.0
UNIV GENOA	12	136	11.3
UNIV MANCHESTER	12	188	15.7
UNIV PORTSMOUTH	12	131	10.9
UNIV SHEFFIELD	12	138	11.5
UNIV VIGO	12	160	13.3
CTR OCEANOL MARSEILLE	11	134	12.2
STATE UNIV GHENT	11	309	28.1
UNIV ATHENS	11	80	7.3
UNIV DUNDEE	11	319	29.0
UNIV E ANGLIA	11	282	25.6
UNIV LISBON	11	58	5.3
UNIV PISA	11	78	7.1

HIGH VALUE - ROW AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
CHINESE ACAD SCI	66	297	4.5
MONTANA STATE UNIV	52	2683	51.6
UNIV MARYLAND	47	992	21.1
UNIV WASHINGTON	45	692	15.4
UNIV N CAROLINA	42	488	11.6
UNIV NEW S WALES	41	616	15.0
NOAA	39	590	15.1
HARVARD UNIV	37	1536	41.5
UNIV CALIF SANTA CRUZ	34	491	14.4
UNIV BRITISH COLUMBIA	32	470	14.7
UNIV CALIF SAN DIEGO	32	846	26.4
UNIV SAO PAULO	30	511	17.0
UNIV CALIF SANTA BARBARA	29	482	16.6
UNIV FLORIDA	29	392	13.5
TEXAS A&M UNIV	28	375	13.4
UNIV CALGARY	28	697	24.9
UNIV QUEENSLAND	28	492	17.6
UNIV TORONTO	28	508	18.1
UNIV ILLINOIS	27	1301	48.2
RUSSIAN ACAD SCI	26	129	5.0
UNIV WISCONSIN	26	391	15.0
WOODS HOLE OCEANOGRAPHIC INST	26	545	21.0
PUKYONG NATL UNIV	25	55	2.2
UNIV CALIF DAVIS	24	354	14.8
UNIV SO CALIF	24	309	12.9
N CAROLINA STATE UNIV	23	493	21.4
QUEENS UNIV BELFAST	22	207	9.4
UNIV HONG KONG	22	172	7.8
UNIV MIAMI	22	237	10.8
HOKKAIDO UNIV	21	165	7.9
OCEAN UNIV CHINA	21	68	3.2
UNIV CALIF LOS ANGELES	20	382	19.1
UNIV FED RIO DE JANEIRO	20	231	11.6
UNIV GEORGIA	20	289	14.5
UNIV MISSISSIPPI	20	389	19.5
AUSTRALIAN INST MARINE SCI	19	174	9.2
HEBREW UNIV JERUSALEM	19	207	10.9
UNIV MICHIGAN	19	306	16.1
UNIV TASMANIA	19	230	12.1
UNIV TENNESSEE	19	229	12.1
NATL INST OCEANOGRAPHIC	18	96	5.3
OREGON STATE UNIV	18	271	15.1
UNIV TOKYO	18	246	13.7
UNIV PRETORIA	17	177	10.4
UNIV S CAROLINA	17	327	19.2
UNIV TEXAS	17	1315	77.4
ENVIRONMENTAL CANADA	16	123	7.7
NATL TAIWAN OCEANOGRAPHIC UNIV	16	86	5.4
STANFORD UNIV	16	208	13.0

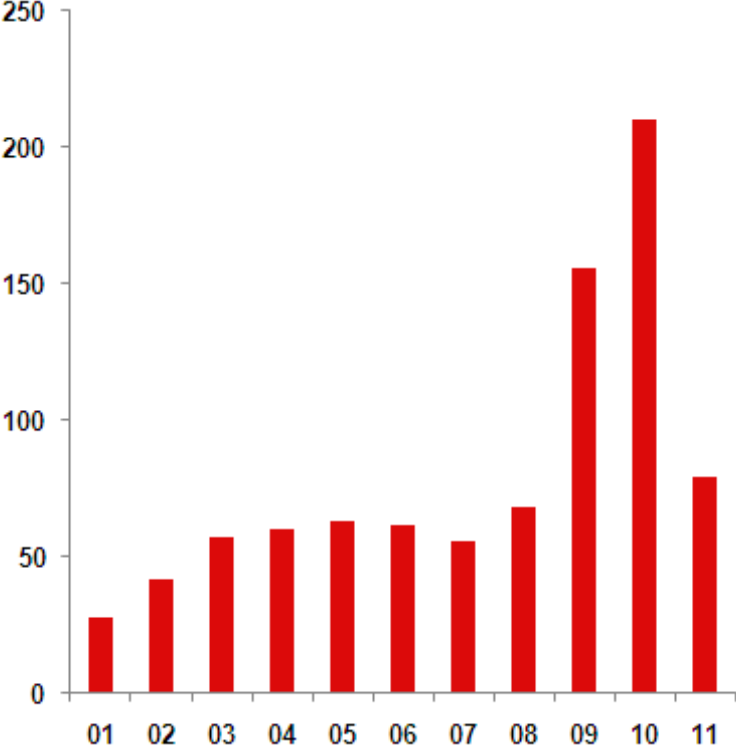
6.10 Top Authors

HIGH VALUE - EU INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
CALLOW, J A	23	460	20.0
CALLOW, M E	23	460	20.0
AZEREDO, J	16	140	8.8
OLIVEIRA, R	15	114	7.6
KJELLEBERG, S	12	220	18.3
VIEIRA, M J	12	144	12.0
JOUENNE, T	11	104	9.5
SIMOES, M	11	107	9.7
COENYE, T	10	71	7.1
FINLAY, J A	10	332	33.2
COSETTE, P	9	152	16.9
JUNTER, G A	9	104	11.6
NELIS, H J	9	89	9.9
PEREIRA, M O	9	89	9.9
FATTORUSSO, E	8	137	17.1
GIVSKOV, M	8	117	14.6
MOLIN, S	8	276	34.5
O'DOHERTY, J V	8	34	4.3
VERDEGEM, M C J	8	122	15.3
WILSON, W H	8	198	24.8
AZIM, M E	7	122	17.4
BERNARD, C	7	108	15.4
GHIGO, J M	7	417	59.6
GILBERT, P	7	114	16.3
HELLIO, C	7	154	22.0
HENRIQUES, M	7	21	3.0
SIMOES, L C	7	58	8.3
SVENSATER, G	7	190	27.1
VAN DER MEI, H C	7	99	14.1
ARNDT, H	6	40	6.7
BLANCK, H	6	50	8.3
BRIANDET, R	6	68	11.3
BUSSCHER, H J	6	99	16.5
DOUGLAS, L J	6	335	55.8
EGAN, S	6	55	9.2
FRISCHER, M E	6	76	12.7
JASPARS, M	6	50	8.3
KARSTEN, U	6	51	8.5
PEETERS, E	6	42	7.0
PROKSCH, P	6	174	29.0
RAMAGE, G	6	67	11.2
ROZALSKA, B	6	26	4.3
STAL, L J	6	163	27.2
WEITERE, M	6	40	6.7
BJARNSHOLT, T	5	69	13.8
BOTANA, L M	5	22	4.4
BOURGOUNON, N	5	150	30.0
BROTAS, V	5	38	7.6
CERCA, N	5	85	17.0

HIGH VALUE - ROW INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
KJELLEBERG, S	28	492	17.6
CERI, H	25	543	21.7
STEWART, P S	20	1251	62.6
CALLOW, J A	14	343	24.5
CALLOW, M E	14	343	24.5
STOODLEY, P	14	1011	72.2
TURNER, R J	14	225	16.1
KIM, S K	13	30	2.3
BROZEL, V S	11	191	17.4
COSTERTON, J W	11	1382	125.6
GHANNOUM, M A	11	996	90.5
HARRISON, J J	11	221	20.1
LI, J	11	48	4.4
SAMARANAYAKE, L P	11	33	3.0
WEBB, J S	11	305	27.7
CHANDRA, J	10	996	99.6
EHRlich, G D	10	575	57.5
FINLAY, J A	10	332	33.2
HAMANN, M T	10	310	31.0
KIM, J H	10	49	4.9
LEE, J	10	114	11.4
LOPEZ-RIBOT, J L	10	493	49.3
MUKHERJEE, P K	10	935	93.5
NEWMAN, D J	10	192	19.2
O'TOOLE, G A	10	1647	164.7
SAUER, K	10	1131	113.1
STEINBERG, D	10	102	10.2
ZEHR, J P	10	180	18.0
CHHIBBER, S	9	39	4.3
EGAN, S	9	133	14.8
HASSETT, D J	9	327	36.3
AARON, S D	8	193	24.1
CAMPER, A K	8	563	70.4
COLWELL, R R	8	253	31.6
FENICAL, W	8	333	41.6
FRANKLIN, M J	8	322	40.3
HARJAI, K	8	43	5.4
KIM, J	8	49	6.1
POST, J C	8	150	18.8
QIAN, P Y	8	130	16.3
SHARMA, S	8	43	5.4
WANG, Y	8	16	2.0
WOLFAARDT, G M	8	34	4.3
BERLINCK, R G S	7	153	21.9
BHOSLE, N B	7	71	10.1
BURNE, R A	7	184	26.3
CASADEVALL, A	7	70	10.0
CRAGG, G M	7	108	15.4
FOSTER, R A	7	80	11.4

7 Offshore Wind

7.1 Invention Velocity



7.2 Priority Country Analysis

PRIORITY COUNTRIES	INVENTIONS	TOTAL CITES	CITES PER INVENTION
PATENT CO-OPERATION TREATY	211	74	0.4
GERMANY	201	148	0.7
UNITED STATES OF AMERICA	170	146	0.9
CHINA	156	1	0.0
JAPAN	133	47	0.4
EUROPEAN PATENT OFFICE	89	86	1.0
UNITED KINGDOM	66	27	0.4
KOREA, REPUBLIC OF	43	7	0.2
FRANCE	32	27	0.8
NORWAY	28	1	0.0
DENMARK	25	15	0.6
SPAIN	21	3	0.1
CANADA	16	6	0.4
NETHERLANDS	15	2	0.1
AUSTRALIA	10	1	0.1
RUSSIAN FEDERATION	7	2	0.3
SWEDEN	7	0	0.0
NEW ZEALAND	6	0	0.0
AUSTRIA	4	1	0.3
BELGIUM	4	0	0.0
FINLAND	4	10	2.5
ITALY	4	3	0.8
TAIWAN	4	1	0.3
BRAZIL	3	0	0.0
MEXICO	3	0	0.0
PORTUGAL	3	0	0.0
TURKEY	2	0	0.0
BOSNIA AND HERZEGOVINA	1	0	0.0
CHILE	1	0	0.0
CZECH REPUBLIC	1	0	0.0
EGYPT	1	0	0.0
IRELAND	1	0	0.0
ISRAEL	1	0	0.0
POLAND	1	0	0.0
ROMANIA	1	0	0.0
SOUTH AFRICA	1	0	0.0

7.3 Top Assignees

TOP ASSIGNEES	TOTAL
GENERAL ELECTRIC CO	16
VESTAS WIND SYSTEMS AS	16
MITSUBISHI GROUP OF COMPANIES	13
SIEMENS	12
ZUEBLIN AG ED	11
HITACHI	8
UNIV SHANGHAI JIAOTONG	8
REPOWER SYSTEMS AG	7
GOYO KENSETSU KK	6
SHIMIZU CONSTR CO LTD	6
ABB GROUP	5
GEOSEA NV	5
KAJIMA CORP	5
NORDEX ENERGY GMBH	5
WE SERWIND GMBH	5
AERODYN ENG GMBH	4
BARD ENG GMBH	4
CLIPPER WINDPOWER INC	4
CLIPPER WINDPOWER TECHNOLOGY INC	4
ISHIKAWAJIMA HARIMA HEAVY IND	4
MITSUMI ENG & SHIPBUILDING CO	4
XEMC DARWIND BV	4
BARD HOLDING GMBH	3
BOSCH GMBH	3
CCCC THIRD HARBOR ENG CO LTD	3
CHINA NAT OFF SHORE OIL CORP	3
CHINESE ACADEMY OF SCIENCES	3
DOKURITSU GYOSEI HOJIN KAIJO GIJUTSU ANZ	3
ENG BUSINESS LTD	3
NORSK HYDRO AS	3
UNIV I STAVANGER	3
UNIV INHA	3
UNIV TOKYO	3
BONUS ENERGY AS	2
BOREAS CONSULTANTS LTD	2
CHAPDRIVE AS	2
CHINA HYDROPOWER ENG CONSULTING GROUP ZH	2
CONCRETE MARINE STRUCTURES LTD	2

7.4 Top EU Academic Institutes

OFFSHORE WIND -EU ACADEMIC INSTITUTES	INVENTIONS
UNIV I STAVANGER	3
ARMED FORCES GENERAL MILITARY ACAD	1
IMPERIAL COLLEGE INNOVATIONS LTD	1
SAMARA ARCHITECTURE-BUILDING ACAD	1
UNIV BREMEN	1
UNIV DANMARKS TEKNISKE DTU	1
UNIV DELFT TECH	1
UNIV NAVAL	1
UNIV NOTTINGHAM	1
UNIV SHEFFIELD	1
UNIV SOUTHAMPTON	1

7.5 Top ROW Academic Institutes

OFFSHORE WIND -ROW ACADEMIC INSTITUTES	INVENTIONS
UNIV SHANGHAI JIAOTONG	8
CHINESE ACADEMY OF SCIENCES	3
UNIV INHA	3
UNIV TOKYO	3
UNIV CHINA PETROLEUM	2
UNIV ZHEJIANG	2
JEJU COLLEGE TECHNOLOGY IND ACADEMIC COO	1
SHANGHAI OCEAN UNIVERSITY	1
UNIV CENT SOUTH	1
UNIV CHINA	1
UNIV CHONGQING	1
UNIV DALIAN	1
UNIV HEHAI	1
UNIV HIROSHIMA	1
UNIV NIPPON	1
UNIV SHANGHAI	1
UNIV SHANGHAI MARITIME	1
UNIV TIANJIN	1
UNIV TOKAI	1
UNIV YAN SHAN	1
UNIV ZHEJIANG OCEAN	1
UNIVERSTAR SCI&TECHNOLOGY CO LTD	1

7.6 Cites per Inventions Analysis

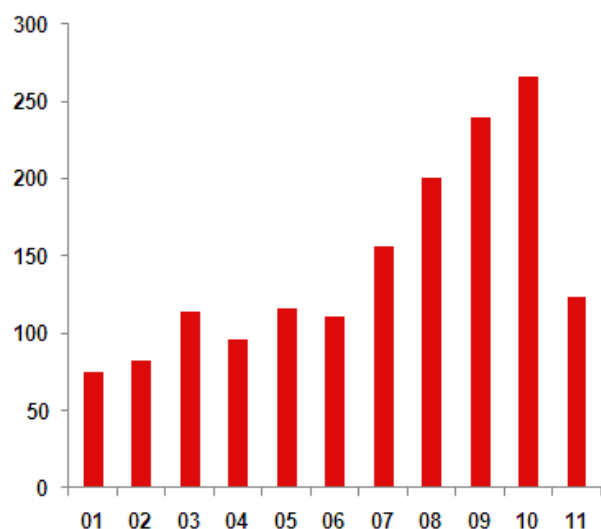
OFFSHORE WIND ACADEMIC INSTITUTES	INVENTIONS	TOTAL CITES	CITES PER PATENT
UNIV SHANGHAI JIAOTONG	8	0	0.0
CHINESE ACADEMY OF SCIENCES	3	0	0.0
UNIV I STAVANGER	3	0	0.0
UNIV INHA	3	1	0.3
UNIV TOKYO	3	0	0.0
UNIV CHINA PETROLEUM	2	0	0.0
UNIV ZHEJIANG	2	0	0.0
ARMED FORCES GENERAL MILITARY ACAD	1	0	0.0
IMPERIAL COLLEGE INNOVATIONS LTD	1	13	13.0
JEJU COLLEGE TECHNOLOGY IND ACADEMIC COC	1	0	0.0
SAMARA ARCHITECTURE-BUILDING ACAD	1	2	2.0
SHANGHAI OCEAN UNIVERSITY	1	0	0.0
UNIV BREMEN	1	0	0.0
UNIV CENT SOUTH	1	0	0.0
UNIV CHINA	1	0	0.0
UNIV CHONGQING	1	0	0.0
UNIV DALIAN	1	0	0.0
UNIV DANMARKS TEKNISKE DTU	1	1	1.0
UNIV DELFT TECH	1	0	0.0
UNIV HEHAI	1	0	0.0
UNIV HIROSHIMA	1	0	0.0
UNIV NAVAL	1	0	0.0
UNIV NIPPON	1	1	1.0
UNIV NOTTINGHAM	1	0	0.0
UNIV SHANGHAI	1	0	0.0
UNIV SHANGHAI MARITIME	1	0	0.0
UNIV SHEFFIELD	1	0	0.0
UNIV SOUTHAMPTON	1	2	2.0
UNIV TIANJIN	1	0	0.0
UNIV TOKAI	1	1	1.0
UNIV YANSHAN	1	0	0.0
UNIV ZHEJIANG OCEAN	1	0	0.0
UNIVERSTAR SCI&TECHNOLOGY CO LTD	1	0	0.0

7.7 Inventor Analysis

OFFSHORE WIND -EU ACADEMIC INVENTORS	INVENTIONS
GRONLI J	2
GUDMESTAD H A	2
GUDMESTAD O T	2
BALZANNIKOV M I	1
COKER C M	1
DIXON R K	1
EVDOKIMOV S V	1
GALITSKOVA YU M	1
GARVEY S D	1
KHOMICH V I	1
NERGAARD A	1
ORLIK B	1
PEDERSEN T F	1
RADCHENKO P M	1
RIDGWAY K	1
STAROSTIN A A	1
STAROSTIN M M	1
VAN DER TEMPEL J	1

OFFSHORE WIND - ROW ACADEMIC INVENTORS	INVENTIONS
CHO C H	3
FUKUMOTO Y	3
HE Y CN	3
ISHIHARA T	3
KIM G S	3
MIYAGAWA M	3
SHIMADA K	3
SON C R	3
WANG Z	3
CHEN Y CN	2
FUJINO Y	2
HUANG D	2
LI S CN	2
LIN W	2
LIN W CN	2
LUO R	2
LUO R CN	2
MATSUO K	2
SHANG J	2
SHANG J CN	2
TAN J CN	2
WANG G CN	2
WANG Z CN	2
ZHU P	2
ZHU P CN	2
ARIO I	1
BONG WOON K	1
CAI H CN	1
CAI X	1
CAI X CN	1
CAO Y	1
CAO Y CN	1
CEZARY G	1
CHEN L	1
CHEN L CN	1
CHEN R	1
CHEN R CN	1
CHEN X CN	1
CHEN Y	1
DING H CN	1
DU J CN	1
FAN L	1
GRISCHKOWSKY C	1
GUO J CN	1
GUO X CN	1
HAN F CN	1
HE Y	1
HOLNICKI J	1

7.8 Publication Rate & Top Author Affiliation Country



COUNTRY	PAPERS	TOTAL CITES	CITES PER PAPER
USA	508	2453	4.8
GERMANY	141	669	4.7
ENGLAND	131	530	4.0
DENMARK	96	420	4.4
PEOPLES R CHINA	91	454	5.0
FRANCE	76	402	5.3
AUSTRALIA	72	739	10.3
CANADA	70	452	6.5
JAPAN	65	190	2.9
SPAIN	62	560	9.0
SWEDEN	56	678	12.1
NETHERLANDS	53	517	9.8
ITALY	46	537	11.7
GREECE	42	204	4.9
RUSSIA	38	123	3.2
INDIA	36	195	5.4
TURKEY	35	286	8.2
SCOTLAND	34	197	5.8
NORWAY	26	129	5.0
TAIWAN	25	93	3.7
PORTUGAL	22	143	6.5
BRAZIL	21	91	4.3
SOUTH KOREA	18	42	2.3
NEW ZEALAND	17	97	5.7
SWITZERLAND	17	174	10.2
BELGIUM	13	107	8.2
ARGENTINA	11	51	4.6
CHILE	11	39	3.5
ISRAEL	11	83	7.5
MEXICO	11	103	9.4
CROATIA	10	32	3.2
IRELAND	10	23	2.3
POLAND	10	9	0.9
UKRAINE	9	32	3.6
EGYPT	8	44	5.5
WALES	8	27	3.4
AUSTRIA	7	142	20.3
FINLAND	7	77	11.0
JORDAN	7	52	7.4
ALGERIA	6	14	2.3
MOROCCO	6	15	2.5
ESTONIA	5	36	7.2
HUNGARY	5	14	2.8

7.9 Top Affiliations

OFFSHORE WIND - EU AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
RISO NATL LAB	29	201	6.9
DELFT UNIV TECHNOL	17	154	9.1
UNIV AALBORG	16	57	3.6
CNR	15	295	19.7
INDIANA UNIV	15	135	9.0
TECH UNIV DENMARK	15	42	2.8
IFREMER	13	125	9.6
STOCKHOLM UNIV	13	79	6.1
CSIC	10	104	10.4
LEIBNIZ UNIV HANNOVER	10	6	0.6
CNRS	9	75	8.3
NATL TECH UNIV ATHENS	9	35	3.9
UNIV DURHAM	9	74	8.2
UPPSALA UNIV	8	59	7.4
BIDSTON OBSERV	7	69	9.9
MAX PLANCK INST METEOROL	7	122	17.4
NASA	7	129	18.4
NORWEGIAN UNIV SCI & TECHNOL	7	41	5.9
ROYAL NETHERLANDS METEOROL INST	7	157	22.4
TEI PIRAEUS	7	77	11.0
UCL	7	53	7.6
UNIV PARIS 06	7	31	4.4
UNIV ZAGREB	7	28	4.0
ROYAL INST TECHNOL	6	185	30.8
TECH UNIV BERLIN	6	64	10.7
UNIV BIRMINGHAM	6	77	12.8
UNIV COPENHAGEN	6	103	17.2
UNIV HAMBURG	6	25	4.2
UNIV LAS PALMAS GRAN CANARIA	6	54	9.0
UNIV MIAMI	6	137	22.8
UNIV READING	6	35	5.8
UNIV SOUTHAMPTON	6	50	8.3
USN	6	87	14.5
AARHUS UNIV	5	39	7.8
EUROPEAN CTR MEDIUM RANGE WEATHER F	5	32	6.4
INST SUPER TECN	5	23	4.6
LUND UNIV	5	117	23.4
NANSEN ENVIRONM & REMOTE SENSING CTR	5	38	7.6
NATL ACAD SCI UKRAINE	5	1	0.2
PROUDMAN OCEANOLOG LAB	5	56	11.2
UNIV KIEL	5	82	16.4
UNIV LOUGHBOROUGH	5	11	2.2
UNIV MANCHESTER	5	35	7.0
UNIV NOTTINGHAM	5	54	10.8
UNIV OXFORD	5	16	3.2
UNIV POLITECN VALENCIA	5	20	4.0
UNIV STUTTGART	5	31	6.2
UNIV TECN LISBON	5	23	4.6
UNIV UTRECHT	5	24	4.8

OFFSHORE WIND - ROW AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
UNIV WASHINGTON	33	399	12.1
NOAA	27	345	12.8
USN	23	237	10.3
RUSSIAN ACAD SCI	22	37	1.7
MIT	19	163	8.6
UNIV MIAMI	19	228	12.0
UNIV TOKYO	19	107	5.6
WOODS HOLE OCEANOLOG INST	19	356	18.7
CHINESE ACAD SCI	18	84	4.7
UNIV CALIF SAN DIEGO	17	167	9.8
INDIANA UNIV	16	135	8.4
NASA	15	238	15.9
OCEAN UNIV CHINA	15	107	7.1
UNIV CALIF DAVIS	15	97	6.5
UNIV NEW S WALES	15	80	5.3
STANFORD UNIV	14	183	13.1
UNIV COLORADO	14	397	28.4
UNIV DELAWARE	14	103	7.4
UNIV MARYLAND	14	82	5.9
OREGON STATE UNIV	12	138	11.5
UNIV MASSACHUSETTS	12	71	5.9
INDIAN INST TECHNOL	11	72	6.5
RISO NATL LAB	11	95	8.6
UNIV WESTERN AUSTRALIA	11	236	21.5
CALTECH	10	80	8.0
PRINCETON UNIV	10	108	10.8
UNIV HAWAII MANOA	10	76	7.6
UNIV RHODE ISL	10	27	2.7
COLORADO STATE UNIV	9	147	16.3
ENVIRONM CANADA	9	66	7.3
ISTANBUL TECH UNIV	9	24	2.7
SWINBURNE UNIV TECHNOL	9	74	8.2
UNIV HAWAII	9	108	12.0
UNIV TEXAS AUSTIN	9	24	2.7
IFREMER	8	62	7.8
NATL CTR ATMOSPHER RES	8	24	3.0
UNIV ARIZONA	8	57	7.1
USDA ARS	8	73	9.1
CHINA METEOROL ADM	7	8	1.1
FISHERIES & OCEANS CANADA	7	49	7.0
JOHNS HOPKINS UNIV	7	52	7.4
NATL CHENG KUNG UNIV	7	36	5.1
UNIV AUCKLAND	7	58	8.3
UNIV CALIF BERKELEY	7	53	7.6
UNIV CALIF LOS ANGELES	7	222	31.7
US GEOL SURVEY	7	171	24.4
DALHOUSIE UNIV	6	61	10.2
NATL RENEWABLE ENERGY LAB	6	84	14.0
TEXAS A&M UNIV	6	33	5.5

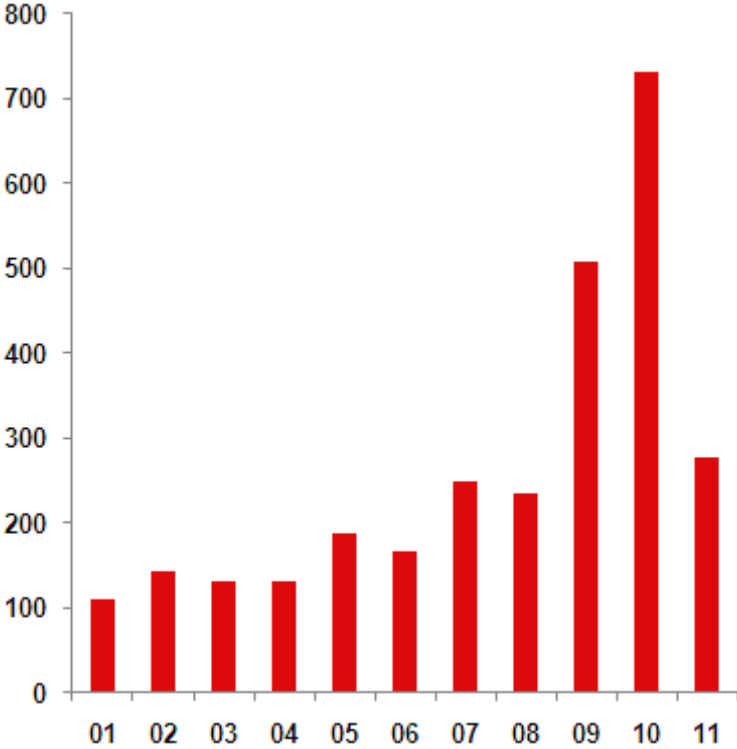
7.10 Top Authors

OFFSHORE WIND - EU INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
BARTHELMIE, R J	17	112	6.6
PRYOR, S C	10	70	7.0
KALDELLIS, J K	9	92	10.2
CHEN, Z	8	23	2.9
SCHAUMANN, P	7	6	0.9
TAVNER, P J	7	68	9.7
AKHMATOV, V	6	76	12.7
CHAPRON, B	6	52	8.7
DAVIES, A M	6	59	9.8
HASAGER, C B	6	36	6.0
LADENBURG, J	6	51	8.5
MADSEN, H	6	32	5.3
BLAABJERG, F	5	15	3.0
CHRISTIANSEN, M B	5	30	6.0
JENSEN, L E	5	19	3.8
KLEIN, P	5	30	6.0
OHMAN, M C	5	53	10.6
PINSON, P	5	18	3.6
XING, J X	5	51	10.2
BAHAJ, A S	4	49	12.3
CARTA, J A	4	40	10.0
DUIC, N	4	23	5.8
GARCIA-RODRIGUEZ, L	4	54	13.5
HANITSCH, R	4	62	15.5
HOJSTRUP, J	4	32	8.0
KLING, W L	4	76	19.0
KRAJACIC, G	4	23	5.8
KUDRYAVTSEV, V	4	32	8.0
LANGE, B	4	32	8.0
PAPADAKIS, G	4	68	17.0
PHILIPPON, N	4	46	11.5
SMEDMAN, A S	4	45	11.3
SORENSEN, P	4	31	7.8
WANG, L	4	12	3.0
WILHELMSSON, D	4	48	12.0
BARTHELMIE, R	3	19	6.3
BATTJES, J A	3	43	14.3
BELCHER, S E	3	26	8.7
BELESSIOTIS, V	3	34	11.3
BLASCO-GIMENEZ, R	3	19	6.3
BYRNE, B W	3	16	5.3
CARVALHO, M D	3	23	7.7
CASTRONUOVO, E D	3	87	29.0
COMER, A	3	2	0.7
CUTULULIS, N A	3	18	6.0
DE DONCKER, R W	3	17	5.7
DE HAAN, S W H	3	11	3.7
DESHOLM, M	3	10	3.3

OFFSHORE WIND - ROW INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
BARTHELMIE, R J	14	86	6.1
PRYOR, S C	11	79	7.2
JACOBSON, M Z	10	169	16.9
HUANG, R X	9	118	13.1
KEMPTON, W	9	100	11.1
BABANIN, A V	8	73	9.1
HWANG, P A	8	57	7.1
WANG, W	8	115	14.4
BANNER, M L	7	71	10.1
HIBIYA, T	7	78	11.1
IMBERGER, J	7	216	30.9
YOUNG, I R	7	66	9.4
ALFORD, M H	6	103	17.2
CHAPRON, B	6	52	8.7
DONELAN, M A	6	41	6.8
FIRESTONE, J	6	67	11.2
MCGOWAN, J G	6	22	3.7
ARCHER, C L	5	123	24.6
HARA, T	5	16	3.2
MANWELL, J F	5	19	3.8
CAPPS, S B	4	9	2.3
CHEN, F L	4	12	3.0
CHEN, Z	4	12	3.0
DINCER, I	4	110	27.5
FALK, M	4	67	16.8
GARVINE, R W	4	23	5.8
GRANOVSKII, M	4	110	27.5
GUAN, C L	4	18	4.5
KENCH, P S	4	40	10.0
LEE, W J	4	12	3.0
LI, X	4	6	1.5
MALONEY, E D	4	73	18.3
PARNELL, K E	4	17	4.3
ROGERS, A L	4	18	4.5
ROSEN, M A	4	110	27.5
SCOTT, R B	4	23	5.8
WANG, L	4	14	3.5
WANG, Z X	4	18	4.5
ZENDER, C S	4	9	2.3
AKDAG, S A	3	1	0.3
ALNASER, W E	3	9	3.0
BERNIER, M	3	4	1.3
BRANDER, R W	3	31	10.3
CHEN, G Q	3	47	15.7
CHEN, J	3	42	14.0
CHOISNARD, J	3	4	1.3
DHANJU, A	3	21	7.0
ERPUL, G	3	16	5.3

8 Ocean Renewable Energy

8.1 Invention Velocity



8.2 Priority Country Analysis

PRIORITY COUNTRIES	INVENTIONS	TOTAL CITES	CITES PER INVENTION
CHINA	631	6	0.0
PATENT CO-OPERATION TREA	596	82	0.1
UNITED STATES OF AMERICA	526	536	1.0
JAPAN	425	30	0.1
KOREA, REPUBLIC OF	403	15	0.0
UNITED KINGDOM	259	47	0.2
GERMANY	241	55	0.2
EUROPEAN PATENT OFFICE	109	15	0.1
AUSTRALIA	92	12	0.1
RUSSIAN FEDERATION	84	6	0.1
SPAIN	82	19	0.2
NORWAY	71	6	0.1
FRANCE	62	15	0.2
CANADA	54	15	0.3
BRAZIL	47	0	0.0
SWEDEN	24	18	0.8
TAIWAN	22	21	1.0
NETHERLANDS	20	11	0.6
DENMARK	15	17	1.1
ROMANIA	14	1	0.1
FINLAND	12	12	1.0
SOUTH AFRICA	11	0	0.0
ITALY	10	2	0.2
IRELAND	8	1	0.1
NEW ZEALAND	8	1	0.1
GREECE	6	6	1.0
CZECH REPUBLIC	5	2	0.4
MEXICO	5	0	0.0
PORTUGAL	5	1	0.2
BELGIUM	4	1	0.3
CHILE	4	0	0.0
INDIA	4	0	0.0
ISRAEL	4	3	0.8
UKRAINE	4	4	1.0
AUSTRIA	2	0	0.0
SINGAPORE	2	0	0.0
AZERBAIJAN	1	0	0.0
BULGARIA	1	0	0.0
EGYPT	1	0	0.0
EURASIAN PATENT ORGANIZA	1	1	1.0
GHANA	1	0	0.0
HONG KONG	1	15	15.0
LITHUANIA	1	0	0.0
MALAYSIA	1	0	0.0
PERU	1	25	25.0
SRI LANKA	1	0	0.0
SWITZERLAND	1	0	0.0

8.3 Top Assignees

TOP ASSIGNEES	TOTAL
OCEAN POWER TECHNOLOGIES INC	19
VOITH PAPER PATENT GMBH	17
LOCKHEED MARTIN CORP	16
UNIV ZHEJIANG	16
BOSCH GMBH	15
HYUNDAI	13
KOREA OCEAN RES&DEV INST	12
CHINESE ACADEMY OF SCIENCES	10
HITACHI	10
MITSUBISHI GROUP OF COMPANIES	10
ROLLS-ROYCE PLC	10
INHA IND PARTNERSHIP INST	9
INNO&POWER INC	8
SINGLE BUOY MOORINGS	8
TOSHIBA	8
ATLANTIS RESOURCES CORP PTE LTD	7
OPENHYDRO IP LTD	7
SAMSUNG	7
SIEMENS	7
UNIV HEHAI	7
UNIV INHA	7
SEABASED AB	6
AQUAMARINE POWER LTD	5
TOYOTA CHUO KENKYUSHO KK	5
UNIV CHINA	5
UNIV TIANJIN	5
CHUGOKU DENRYOKU KK	4
CLIPPER WINDPOWER TECHNOLOGY INC	4
DARTMOUTH WAVE ENERGY LTD	4
DENRYOKU CHUO KENKYUSHO	4
ELECTRICITE DE FRANCE	4
GENERAL ELECTRIC CO	4
GUANGZHOU ENERGY INST CONVERSION CHINESE	4
SEADYNE ENERGY SYSTEMS LLC	4
UNIV DALIAN	4
UNIV HARBIN	4
UNIV KOREA	4
UNIV SHANGHAI MARITIME	4
UNIV SOUTHEAST	4

8.4 Top EU Academic Institutes

OCEAN RENEWABLES -EU ACADEMIC INSTITUES	INVENTIONS
UNIV LANCASTER	3
CNRS CENT NAT RECH SCI	2
UNIV A STRAKHAN	2
UNIV CANTABRIA	2
UNIV DE MONTFORT	2
UNIV KALIN TECH	2
UNIV MOSC NATURE CONSERVATION	2
ARMED FORCES GENERAL MILITARY ACAD	1
FRAUNHOFER GES FOERDERUNG ANGEWANDTEN	1
FUNDACION CENT TECNOLOGICO SOERMAR	1
MILITARY ACAD	1
MILITARY ACAD ROCKET FORCES	1
POLITECNICO DI TORINO	1
QUEEN ELIZABETH COLLEGE DUBLIN	1
SAMARA ARCHITECTURE-BUILDING ACAD	1
UNIV COPPE UFRJ COORDENACAO DOS PROGRAMA	1
UNIV CORUNA	1
UNIV EXETER	1
UNIV GORDON ROBERT	1
UNIV LAGUNA	1
UNIV MADRID POLITECNICA	1
UNIV MANCHESTER	1
UNIV NOTTINGHAM	1
UNIV OMSK TECH	1
UNIV SIEGEN	1
UNIV SOUTHERN FEDERAL	1
UNIV SURREY	1
UNIV ULYAN TECH	1

8.5 Top ROW Academic Institutes

OCEAN RENEWABLES -ROW ACADEMIC INSTITUTES	INVENTIONS
UNIV ZHEJIANG	16
CHINESE ACADEMY OF SCIENCES	10
UNIV HEHAI	7
UNIV INHA	7
UNIV CHINA	5
UNIV TIANJIN	5
UNIV DALIAN	4
UNIV HARBIN	4
UNIV KOREA	4
UNIV SHANGHAI MARITIME	4
UNIV SOUTHEAST	4
TOKYO INST TECHNOLOGY	3
UNIV PENGHU NAT	3
UNIV QINGHUA	3
UNIV SHANGHAI JIAOTONG	3
SHAOXING ARTS & SCI ACAD	2
UNIV CHANGAN	2
UNIV GUILIN TECHNOLOGY	2
UNIV KOBE	2
UNIV KUNMING SCI & TECHNOLOGY	2
UNIV NANJING	2
UNIV NIPPON	2
UNIV NORTHEAST NORMAL	2
UNIV OREGON STATE	2
UNIV QINGDAO	2
UNIV YAMAGUCHI	2
UNIV ZHEJIANG IND	2
CHINA UNIVERSITY OF GEOSCIENCES	1
CNRS CENT NAT RECH SCI	1
FRAUNHOFER	1
JEJU COLLEGE TECHNOLOGY IND ACADEMIC COO	1
NATIONAL UNIVERSITY OF DEFENSE TECHNOLOGY	1
SHANGHAI OCEAN UNIVERSITY	1
UNIV BEIJING	1
UNIV CALIFORNIA	1
UNIV CENT FLORIDA	1
UNIV CENT IND CORP	1
UNIV CHANGCHUN SCI&TECHNOLOGY	1
UNIV CHINA PETROLEUM	1
UNIV CHONGQING	1
UNIV CHUNGBUK NAT IND ACADEMIC COOP	1
UNIV COPPE UFRJ COORDENACAO DOS PROGRAMA	1

8.6 Cites per Inventions Analysis

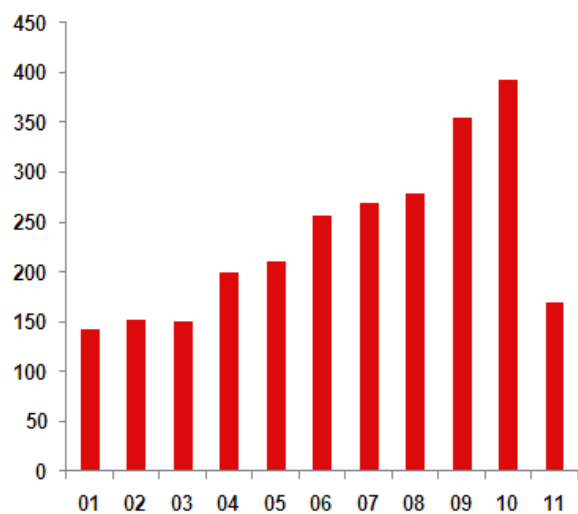
OCEAN RENEWABLES ACADEMIC INSTITUTES	INVENTIONS	TOTAL CITES	CITES PER PATENT
UNIV ZHEJIANG	16	0	0.0
CHINESE ACADEMY OF SCIENCES	10	0	0.0
UNIV INHA	7	6	0.9
UNIV HEHAI	7	0	0.0
UNIV CHINA	5	0	0.0
UNIV TIANJIN	5	0	0.0
UNIV KOREA	4	1	0.3
UNIV DALIAN	4	0	0.0
UNIV HARBIN	4	0	0.0
UNIV SHANGHAI MARITIME	4	0	0.0
UNIV SOUTHEAST	4	0	0.0
TOKYO INST TECHNOLOGY	3	4	1.3
UNIV SHANGHAI JIAOTONG	3	3	1.0
UNIV QINGHUA	3	1	0.3
UNIV LANCASTER	3	0	0.0
UNIV NAT CHUNG HSING	3	0	0.0
UNIV PENGHU NAT	3	0	0.0
UNIV KUN SHAN	2	11	5.5
CNRS CENT NAT RECH SCI	2	4	2.0
UNIV CANTABRIA	2	1	0.5
UNIV DE MONTFORT	2	1	0.5
UNIV KALIN TECH	2	1	0.5
UNIV NIPPON	2	1	0.5
UNIV OREGON STATE	2	1	0.5
UNIV YAMAGUCHI	2	1	0.5
SHAOXING ARTS & SCI ACAD	2	0	0.0
UNIV ASTRAKHAN	2	0	0.0
UNIV CHANGAN	2	0	0.0
UNIV GUILIN TECHNOLOGY	2	0	0.0
UNIV KOBE	2	0	0.0
UNIV KUNMING SCI & TECHNOLOGY	2	0	0.0
UNIV MOSC NATURE CONSERVATION	2	0	0.0
UNIV NANJING	2	0	0.0
UNIV NAT KAOHSIUNG FIRST SCI&TECHNOLOG	2	0	0.0
UNIV NAT SUN YAT SEN	2	0	0.0
UNIV NORTHEAST NORMAL	2	0	0.0
UNIV QINGDAO	2	0	0.0
UNIV ZHEJIANG IND	2	0	0.0
UNIV NORTHEASTERN	1	28	28.0
UNIV MICHIGAN	1	5	5.0
UNIV MANCHESTER	1	3	3.0
SAMARA ARCHITECTURE-BUILDING ACAD	1	2	2.0
UNIV MADRID POLITECNICA	1	2	2.0
UNIV SINGAPORE NAT	1	2	2.0
UNIV OREGON HEALTH SCI	1	1	1.0
ARMED FORCES GENERAL MILITARY ACAD	1	0	0.0

8.7 Inventor Analysis

OCEAN RENEWABLES - EU ACADEMIC INVENTORS	INVENTIONS
CHAPLIN R V	3
BABARIT A	2
BIRYULIN I B	2
BOAIT P	2
CLEMENT A	2
JAKOVENKO A L	2
KHOMICH V I	2
STAROSTIN A A	2
STAROSTIN M M	2
VEDYASHKIN A S	2
AL-MAYAHI A	1
AREULRITEU R	1
ARLITT R	1
BALABAEV A S	1
BALZANNIKOV M I	1
BARBARIT A	1
BELAYA V A	1
BELYI D M	1
BLAU W	1
BRACCO G	1
BRYDEN I	1
BRYDEN I G	1
BULATOV K M	1
BULATOVA A N	1
CARNEROS L A M	1
CARNEROS LOZANO A M	1
CAROLUS T	1
DA COSTA P R	1
DEL C D C F	1
DEL CASTILLO DE COMAS F	1
DEMIDOV L N	1
DIEZ DE ULZURRUN ROMEO I	1
DIEZ U R I	1
DOLGANEV YU G	1
DRURY A	1
DUCLOS G	1
EBERT C	1
EGUILUZ MORAN L I	1
ESTEFEN S F	1
EVDOKIMOV S V	1
FEDORISHCHEV O N	1
FINAEV V I	1
FRANKENSTEIN B	1
FRIEDMANN H	1
GALITSKOVA YU M	1
GAPONENKO A G	1

OCEAN RENEWABLES -ROW ACADEMIC INVENTORS	INVENTIONS
SON C R	3
TAN P J	3
WANG L CN	3
WANG T	3
WANG X	3
WU B	3
ZHANG X	3
AGAMLOH E	2
BAO J	2
CAO J	2
CHEN H	2
CHEN Y CN	2
CHENG X CN	2
DENG J CN	2
DITTRICH M	2
DONG Y CN	2
DONG Z CN	2
FAN Y	2
FANG X	2
GAO Q	2
GU C	2
GU D	2
HAN W CN	2
HE Y CN	2
HE Z CN	2
JIA M CN	2
KAMIYOSHI H	2
KIM Y	2
LI D	2
LI D CN	2
LI H	2
LI J CN	2
LI L CN	2
LI S	2
LI W CN	2
LI X	2
LI X CN	2
LIN W CN	2
LIN Y CN	2
LIN Z	2
LIU S	2
LOU B	2
LUO Z	2
MUTO M	2
QI H	2
SHENG Q	2

8.8 Publication Rate & Top Author Affiliation Country



COUNTRY	PAPERS	TOTAL CITES	CITES PER PAPER
USA	866	2417	2.8
ENGLAND	236	1086	4.6
AUSTRALIA	188	755	4.0
CANADA	177	469	2.6
PEOPLES R CHINA	159	243	1.5
FRANCE	148	479	3.2
JAPAN	133	647	4.9
GERMANY	124	829	6.7
NETHERLANDS	124	835	6.7
SPAIN	101	397	3.9
NEW ZEALAND	91	539	5.9
INDIA	89	292	3.3
ITALY	82	547	6.7
PORTUGAL	76	219	2.9
SWEDEN	72	449	6.2
RUSSIA	71	354	5.0
SOUTH KOREA	61	256	4.2
SCOTLAND	60	460	7.7
TAIWAN	59	350	5.9
NORWAY	55	345	6.3
BRAZIL	45	183	4.1
DENMARK	43	166	3.9
WALES	38	197	5.2
BELGIUM	30	119	4.0
MEXICO	30	66	2.2
TURKEY	29	89	3.1
IRELAND	28	65	2.3
GREECE	24	111	4.6
SINGAPORE	22	57	2.6
ARGENTINA	20	62	3.1
SOUTH AFRICA	19	73	3.8
NORTH IRELAND	17	54	3.2
POLAND	17	195	11.5
IRAN	11	12	1.1
ISRAEL	11	41	3.7
UKRAINE	10	71	7.1

8.9 Top Affiliations

OCEAN RENEWABLES - EU AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
UNIV PLYMOUTH	41	257	6.3
UNIV UTRECHT	36	503	14.0
UPPSALA UNIV	33	106	3.2
DELFT UNIV TECHNOL	27	261	9.7
UNIV EDINBURGH	22	50	2.3
UNIV SOUTHAMPTON	21	195	9.3
IFREMER	21	152	7.2
UNIV TECN LISBON	20	47	2.4
ALFRED WEGENER INST POLAR & MARINE	18	220	12.2
PROUDMAN OCEANOGRAPHY LAB	18	65	3.6
BIDSTON OBSERV	17	196	11.5
UTL	16	70	4.4
USN	15	238	15.9
RUSSIAN ACAD SCI	15	196	13.1
UNIV CADIZ	15	125	8.3
UNIV VIGO	14	132	9.4
UNIV BORDEAUX 1	14	110	7.9
UNIV BERGEN	14	74	5.3
UNIV AALBORG	14	63	4.5
UNIV GHENT	13	3	0.2
CNRS	12	34	2.8
NATL OCEANOGRAPHY CTR	12	29	2.4
UNIV WALES	11	79	7.2
UNIV CAEN	11	71	6.5
UNIV ULSTER	11	47	4.3
NORWEGIAN UNIV SCI & TECHNOL	11	3	0.3
UNIV GOTHENBURG	10	209	20.9
POLISH ACAD SCI	10	181	18.1
UNIV NAPLES 2	10	99	9.9
ROYAL NETHERLANDS INST SEA RES	10	78	7.8
ECOLE CENT NANTES	10	46	4.6
CNR	9	239	26.6
DELFT HYDRAUL	9	157	17.4
SCOTTISH ASSOC MARINE SCI	9	124	13.8
NETHERLANDS INST SEA RES	9	104	11.6
UNIV LOUGHBOROUGH	9	97	10.8
UNIV LITTORAL COTE D'OPALE	9	77	8.6
UNIV OXFORD	9	37	4.1
UNIV GRANADA	9	20	2.2
SEABASED IND AB	9	14	1.6
BANGOR UNIV	9	10	1.1
NATL TECH UNIV ATHENS	8	72	9.0
WOODS HOLE OCEANOGRAPHY INST	8	65	8.1
UNIV LA ROCHELLE	8	63	7.9
UNIV DURHAM	8	44	5.5
UNIV KIEL	8	44	5.5
UNIV EXETER	8	31	3.9
UNIV PADUA	8	26	3.3

OCEAN RENEWABLES - ROW AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
USN	63	533	8.5
UNIV CALIF SAN DIEGO	56	410	7.3
US GEOL SURVEY	52	183	3.5
OREGON STATE UNIV	50	388	7.8
RUSSIAN ACAD SCI	47	269	5.7
UNIV WASHINGTON	46	386	8.4
WOODS HOLE OCEANOGRAPHY INST	45	356	7.9
CHINESE ACAD SCI	41	83	2.0
UNIV WESTERN AUSTRALIA	34	197	5.8
UNIV NEW S WALES	32	422	13.2
INDIAN INST TECHNOL	31	189	6.1
NOAA	29	435	15.0
LOUISIANA STATE UNIV	23	167	7.3
UNIV DELAWARE	23	106	4.6
UNIV RHODE ISL	22	245	11.1
UNIV TOKYO	22	243	11.0
UNIV HAWAII	21	134	6.4
TEXAS A&M UNIV	21	82	3.9
OCEAN UNIV CHINA	21	22	1.0
UNIV HAWAII MANOA	20	350	17.5
UNIV VICTORIA	20	215	10.8
USA	20	172	8.6
SAGA UNIV	20	116	5.8
UNIV MIAMI	20	113	5.7
UNIV CALIF SANTA CRUZ	19	176	9.3
UNIV WAIKATO	19	93	4.9
UNIV AUCKLAND	19	72	3.8
NASA	18	429	23.8
QUEENS UNIV	18	121	6.7
UNIV SYDNEY	18	89	4.9
UNIV S FLORIDA	18	66	3.7
NATL UNIV SINGAPORE	18	45	2.5
COLUMBIA UNIV	17	169	9.9
FISHERIES & OCEANS CANADA	17	126	7.4
NATL TAIWAN UNIV	16	182	11.4
NATL INST WATER & ATMOSPHER RES	16	160	10.0
RUTGERS STATE UNIV	16	133	8.3
UNIV PLYMOUTH	16	100	6.3
BOSTON UNIV	16	87	5.4
KOREA OCEAN RES & DEV INST	16	63	3.9
GEORGIA INST TECHNOL	15	341	22.7
KYUSHU UNIV	15	131	8.7
UNIV MARYLAND	15	124	8.3
DALHOUSIE UNIV	15	75	5.0
UNIV OTAGO	14	76	5.4
UNIV ALBERTA	14	51	3.6
UNIV CALIF IRVINE	13	398	30.6
NATL SUN YAT SEN UNIV	13	61	4.7

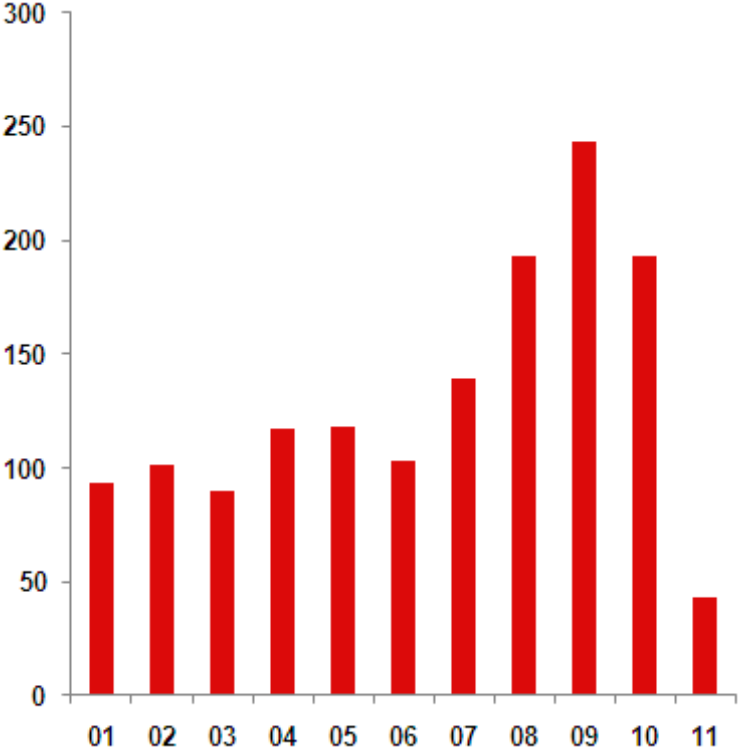
8.10 Top Authors

OCEAN RENEWABLES - EU INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
LEIJON, M	29	153	5.3
VAN HAREN, H	17	37	2.2
MASSELINK, G	16	114	7.1
DAVIES, A M	15	105	7.0
RUESSINK, B G	14	205	14.6
ANTHONY, E J	13	117	9.0
ARDHUIN, F	13	184	14.2
FALCAO, A F D	12	40	3.3
SIMPSON, J H	12	72	6.0
BAHAJ, A S	11	157	14.3
WATERS, R	11	52	4.7
BONNETON, P	10	74	7.4
DE BACKER, G	10	1	0.1
GATO, L M C	10	28	2.8
BEELS, C	9	1	0.1
CARBALLO, R	9	34	3.8
CASTELLE, B	9	53	5.9
CHAPRON, B	9	88	9.8
CLEMENT, A H	9	46	5.1
ERIKSSON, M	9	54	6.0
IGLESIAS, G	9	34	3.8
RIPPETH, T P	9	80	8.9
BERNHOFF, H	8	108	13.5
BERTIN, X	8	57	7.1
COOPER, J A G	8	43	5.4
FRIGAARD, P	8	53	6.6
ISBERG, J	8	64	8.0
RUSSELL, P	8	65	8.1
SENECHAL, N	8	66	8.3
SVENSSON, O	8	40	5.0
VANTORRE, M	8	15	1.9
VICINANZA, D	8	9	1.1
BATTJES, J A	7	76	10.9
DANIELSSON, O	7	46	6.6
DE ROUCK, J	7	1	0.1
JACKSON, N L	7	35	5.0
LEVOY, F	7	61	8.7
MONFORT, O	7	61	8.7
NORDSTROM, K F	7	35	5.0
PEDREROS, R	7	37	5.3
XING, J X	7	42	6.0
BOSTROM, C	6	13	2.2
CHAUMILLON, E	6	57	9.5
COMER, A	6	2	0.3
DAVIDSON, M A	6	103	17.2
DUPUIS, H	6	70	11.7
ENGSTROM, J	6	24	4.0
FAAIJ, A P C	6	120	20.0
FAGHERAZZI, S	6	25	4.2

OCEAN RENEWABLES - ROW INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
HERBERS, T H C	17	196	11.5
SETOGUCHI, T	13	109	8.4
ELGAR, S	12	147	12.3
GUZA, R T	12	88	7.3
BABANIN, A V	11	128	11.6
FITZGERALD, D M	11	84	7.6
NEELAMANI, S	11	1	0.1
KENCH, P S	10	36	3.6
MERRIFIELD, M A	10	176	17.6
TAKAO, M	10	105	10.5
GARRETT, C	9	159	17.7
JACKSON, N L	9	49	5.4
KOBAYASHI, N	9	25	2.8
NORDSTROM, K F	9	49	5.4
PINKEL, R	9	100	11.1
STONE, G W	9	25	2.8
STORLAZZI, C D	9	123	13.7
ARDHUIN, F	8	125	15.6
BRANDER, R W	8	70	8.8
DAVIS, R A	8	43	5.4
FIELD, M E	8	95	11.9
LI, Y	8	29	3.6
LIEN, R C	8	93	11.6
MASSELINK, G	8	63	7.9
MOUM, J N	8	124	15.5
O'REILLY, W C	8	102	12.8
SHORT, A D	8	76	9.5
BANNER, M L	7	165	23.6
CALISAL, S M	7	13	1.9
DALRYMPLE, R W	7	58	8.3
ELIOT, I	7	55	7.9
FAGHERAZZI, S	7	25	3.6
GINGRAS, M K	7	16	2.3
GREGG, M C	7	115	16.4
KAGAN, B A	7	20	2.9
KANEKO, K	7	74	10.6
LEE, K	7	18	2.6
NASH, J D	7	92	13.1
TIAN, J W	7	18	2.6
VENKATARAMAN, C	7	121	17.3
WANG, P	7	33	4.7
YOUNG, I R	7	102	14.6
BRYAN, K R	6	7	1.2
CARTER, G S	6	114	19.0
CHEN, G Y	6	5	0.8
COCO, G	6	24	4.0
HARA, T	6	36	6.0
HARRIS, C K	6	33	5.5
HOLMAN, R A	6	46	7.7

9 Marine Mineral Mining

9.1 Invention Velocity



9.2 Priority Country Analysis

PRIORITY COUNTRIES	INVENTIONS	TOTAL CITES	CITES PER INVENTION
UNITED STATES OF AMERICA	424	200	0.5
CHINA	339	1	0.0
JAPAN	336	61	0.2
PATENT CO-OPERATION TREATY	309	31	0.1
KOREA, REPUBLIC OF	196	11	0.1
RUSSIAN FEDERATION	108	6	0.1
GERMANY	88	32	0.4
FRANCE	83	34	0.4
UNITED KINGDOM	64	48	0.8
EUROPEAN PATENT OFFICE	60	1	0.0
CANADA	43	7	0.2
SPAIN	32	0	0.0
AUSTRALIA	29	0	0.0
MEXICO	16	0	0.0
BRAZIL	13	5	0.4
SOUTH AFRICA	13	0	0.0
UKRAINE	13	0	0.0
NEW ZEALAND	11	1	0.1
NORWAY	11	0	0.0
ISRAEL	7	0	0.0
EURASIAN PATENT ORGANIZATION	6	0	0.0
SWEDEN	6	2	0.3
FINLAND	5	0	0.0
ITALY	5	0	0.0
INDIA	4	0	0.0
CHILE	3	0	0.0
DENMARK	3	2	0.7
ROMANIA	3	0	0.0
SWITZERLAND	3	0	0.0
ARGENTINA	2	0	0.0
BELGIUM	2	0	0.0
GREECE	2	5	2.5
NETHERLANDS	2	0	0.0
SINGAPORE	2	0	0.0
TAIWAN	2	2	1.0
BULGARIA	1	0	0.0
COLOMBIA	1	0	0.0
CYPRUS	1	0	0.0
CZECH REPUBLIC	1	0	0.0
HUNGARY	1	0	0.0
LATVIA	1	0	0.0
PERU	1	1	1.0
REPUBLIC OF MOLDOVA	1	0	0.0
SLOVAKIA	1	0	0.0

9.3 Top Assignees

TOP ASSIGNEES	TOTAL
L'OREAL SA	15
ST PETERSBURG PLEKHANOV MINING INST	13
CHINESE ACADEMY OF SCIENCES	10
KOSE KK	10
COGNIS CORP	9
ELAN CORP PLC	9
BEIERSDORF AG	8
ABB GROUP	7
BASF	7
CAMERON INT CORP	7
M-I LLC	7
UNIV FAR E TECH	7
BAKER HUGHES INC	6
KAO CORP	6
KIGAM KOREA INST GEOSCIENCE&MINERAL	6
SCHLUMBERGER TECHNOLOGY CORP	6
AKAHO KASEI KK	5
CHINA NAT OFF SHORE OIL CORP	5
COLGATE PALMOLIVE CO	5
LIPOTEC SA	5
WATERVIS CO LTD	5
AS RUSSIA FAR E MINING INST	4
AS SIBE N MINING INST	4
DAEWOO CORP	4
EVONIK ROHMAX ADDITIVES GMBH	4
HALLIBURTON CO	4
HITACHI	4
INST FRANCAIS DU PETROLE	4
KURARAY CO LTD	4
MITSUBISHI GROUP OF COMPANIES	4
SEDERMA	4
TECHNIP	4
US SEC OF NAVY	4
YAT SUKA BUSSAN YG	4
AJINOMOTO CO INC	3
AMCOL INT CORP	3
BOEING CO	3
CHANGSHA INST MINE	3
CHINA FOOD FERMENTATION IND RES INST	3
CHINA NAT PETROLEUM CORP	3
CYDEX INC	3
DOKURITSU GYOSEI HOJIN SANGYO GIJUTSU SO	3
EXXON	3
GREENTECH SA	3

9.4 Top EU Academic Institutes

MARINE MINERAL -EU ACADEMIC INSTITUES	INVENTIONS
UNIV FAR E TECH	7
UNIV NAT MINING	3
CNRS CENT NAT RECH SCI	2
AS RUSSIA MARINE BIOLOGY INST	1
HARBOR BRANCH OCEANOGRAPHIC	1
KRASY NONFERR METALS GOLD ACAD	1
MASSACHUSETTS INST TECHNOLOGY	1
PALLADIN BIOCHEMISTRY INST NAT ACAD S	1
QUEEN MARY & WESTFIELD COLLEGE	1
UNIV ARIZONA STATE	1
UNIV A STRAKHAN	1
UNIV BELGOROD	1
UNIV CHITINSK	1
UNIV DRESDEN TECH	1
UNIV KUBAN AGRIC	1
UNIV MALAGA	1
UNIV MARYLAND BIOTECHNOLOGY INST	1
UNIV PERM GORKII	1
UNIV PRINCETON	1
UNIV SANTIAGO COMPOSTELA	1
UNIV SHEFFIELD	1
UNIV SOUTHAMPTON	1

9.5 Top ROW Academic Institutes

MARINE MINERAL -ROW ACADEMIC INSTITUTES	INVENTIONS
CHINESE ACADEMY OF SCIENCES	10
UNIV CHINA OCEANOGRAPHY	3
UNIV DALIAN	3
UNIV PUKYONG NAT	3
UNIV BEIJING	2
UNIV CALIFORNIA	2
UNIV CHINA GEOLOGY BEIJING	2
UNIV DALIAN POLYTECHNIC	2
UNIV GUANGDONG OCEAN	2
UNIV JIANGNAN	2
UNIV KANGNUNG NAT	2
UNIV MARYLAND BIOTECHNOLOGY INST	2
UNIV MOKPO NAT IND ACAD COOP GROU	2
UNIV NORTH WEST	2
UNIV SHANDONG	2
UNIV SHANGHAI JIAOTONG	2
UNIV TEXAS	2
BIOLOGY INST SHANDONG SCI ACAD	1
CHINESE ACAD SOUTH CHINA SEA INST OCEAN	1
CSIC NO 725 RES & DEV INST	1
DALIAN NAT ACAD	1
DARTMOUTH COLLEGE	1
FUNDACAO AMPARO A PESQUISA DO ESTADO	1
HANGZHOU COMMML COLLEGE	1
HARBOR BRANCH OCEANOGRAPHIC	1
INST TROPICAL CROP GERMPLOASM RESOURCES CHINE	1
MASSACHUSETTS INST TECHNOLOGY	1
NANHAI AQUATIC PROD INST CHINESE ACAD AQ	1
PALLADIN BIOCHEMISTRY INST NAT ACAD SCI	1
QUEEN MARY & WESTFIELD COLLEGE	1
SHANXI COAL CHEM ACAD SINICA	1
SICHUAN INST SPECIAL SEA TECHNOLOGY	1
UNIV AJOU IND ACADEMIC COOP FOUND	1
UNIV ARIZONA STATE	1
UNIV BRITISH COLUMBIA	1
UNIV CENT FLORIDA	1
UNIV CENT SOUTH	1
UNIV CHINA AGRIC	1
UNIV CHINA MARINE	1

9.6 Cites per Inventions Analysis

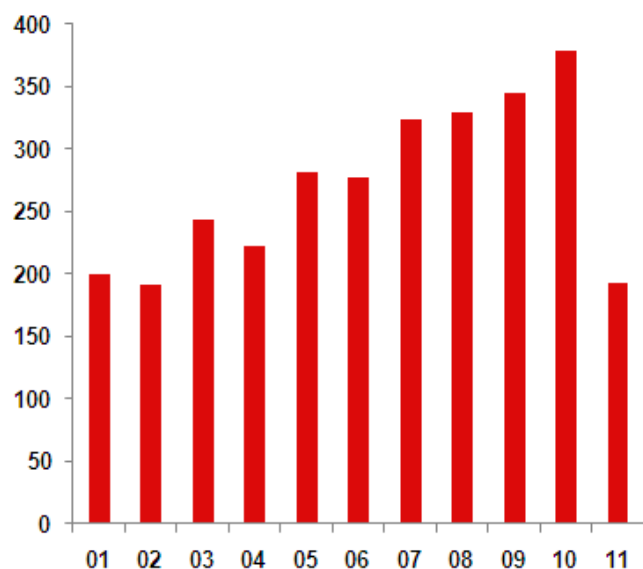
MARINE MINERAL ACADEMIC INSTITUTES	INVENTIONS	TOTAL CITES	CITES PER PATENT
CHINESE ACADEMY OF SCIENCES	10	0	0.0
UNIV FAR E TECH	7	0	0.0
UNIV CHINA OCEANOGRAPHY	3	0	0.0
UNIV DALIAN	3	0	0.0
UNIV NAT MINING	3	0	0.0
UNIV PUKYONG NAT	3	1	0.3
CNRS CENT NAT RECH SCI	2	0	0.0
UNIV BEIJING	2	0	0.0
UNIV CALIFORNIA	2	26	13.0
UNIV CHINA GEOLOGY BEIJING	2	0	0.0
UNIV DALIAN POLYTECHNIC	2	0	0.0
UNIV GUANGDONG OCEAN	2	0	0.0
UNIV JIANGNAN	2	0	0.0
UNIV KANGNUNG NAT	2	3	1.5
UNIV MARYLAND BIOTECHNOLOGY INST	2	12	6.0
UNIV MOKPO NAT IND ACAD COOP GROU	2	0	0.0
UNIV NORTH WEST	2	0	0.0
UNIV SHANDONG	2	0	0.0
UNIV SHANGHAI JIAOTONG	2	0	0.0
UNIV TEXAS	2	0	0.0
AS RUSSIA MARINE BIOLOGY INST	1	0	0.0
BIOLOGY INST SHANDONG SCI ACAD	1	0	0.0
CHINESE ACAD SOUTH CHINA SEA INST OCEAN	1	1	1.0
CSIC NO 725 RES & DEV INST	1	0	0.0
DALIAN NAT ACAD	1	0	0.0
DARTMOUTH COLLEGE	1	0	0.0
FUNDACAO AMPARO A PESQUISA DO ESTADO	1	0	0.0
HANGZHOU COMML COLLEGE	1	0	0.0
HARBOR BRANCH OCEANOGRAPHIC	1	0	0.0
INST TROPICAL CROP GERMPLOSM RESOURCES	1	0	0.0
KRASY NONFERR METALS GOLD ACAD	1	0	0.0
MASSACHUSETTS INST TECHNOLOGY	1	0	0.0
NANHAI AQUATIC PROD INST CHINESE ACAD AQ	1	0	0.0
PALLADIN BIOCHEMISTRY INST NAT ACAD SCI	1	0	0.0
QUEEN MARY & WESTFIELD COLLEGE	1	0	0.0
SHANXI COAL CHEM ACAD SINICA	1	0	0.0
SICHUAN INST SPECIAL SEA TECHNOLOGY	1	0	0.0
UNIV AJOU IND ACADEMIC COOP FOUND	1	0	0.0
UNIV ARIZONA STATE	1	0	0.0
UNIV ASTRAKHAN	1	0	0.0
UNIV BELGOROD	1	0	0.0
UNIV BRITISH COLUMBIA	1	0	0.0
UNIV CENT FLORIDA	1	1	1.0
UNIV CENT SOUTH	1	0	0.0
UNIV CHINA AGRIC	1	0	0.0
UNIV CHINA MARINE	1	0	0.0
UNIV CHINA PETROLEUM EAST CHINA	1	0	0.0

9.7 Inventor Analysis

MARINE MINERAL -EU ACADEMIC INVENTORS	INVENTIONS
CHERNEI EH I	7
VOILOSHNIKOV M V	7
EVTEEV V V	3
FRANCHUK V P	3
KIRICHENKO E A	3
PIVNYAK G G	3
EGURNOV A I	2
AGEENKO N V	1
AGUILERA ARJONA J	1
AVDEEV P B	1
BEN MOHAMED FDHILA F	1
BERTRAND C	1
BHATIA S N	1
BISHOP A	1
BORODA A	1
BORODA A V	1
CARTER A A	1
CHERNIAVISKYI P	1
COMTE G	1
DATSENKO Z	1
DE LA COBA LUQUE F	1
DE OLIVEIRA R	1
DE OLIVERIA R	1
DEOLIVEIRA R	1
DERFUS A M	1
DJOURI R	1
DRYAMOV V S	1
DZERZHINSKAYA I S	1
GANDI A	1
GUNASEKERA S P	1
HELBERT W	1
HERALD C L	1
JASHKIN I A	1
JONCOUR G S	1
JONCOUR GENICOT S	1
KAMANO Y	1
KANIVETS N	1
KISLYAKOV V E	1
KLIMENTOV M N	1
KOMISARENKO S	1
KOSTETSKII EH YA	1
KROPACHEV A M	1
KULIKOVA I YU	1
KVASENKOV O I	1
LOPEZ FIGUEROA F	1
MAYER A	1
MAYER A M S	1
MUNFORD J	1

MARINE MINERAL - ROW ACADEMIC INVENTORS	INVENTIONS
ZHANG Y	8
LI X	4
CHEN W	3
DONG X	3
GU X	3
LI Z	3
LIU J	3
MU J	3
WANG J	3
WANG Y	3
YU L	3
ZHANG J	3
ZHANG W	3
AN X	2
BAI Z	2
CHEN J	2
CHEN S	2
CHEN X	2
HU Q	2
JEONG W N	2
LEE S H	2
LI H	2
LI J	2
LI K	2
LI L	2
LI P	2
LI Y	2
LIU H	2
LIU S	2
LU Y	2
OZKIZILCIK S	2
PARK J H	2
PLACE A R	2
SUN L	2
SUN X	2
WANG B	2
WANG P	2
WANG Z	2
WU Z	2
XIE L	2
XIN Z	2
XU J	2
XU Z	2
XUE Y	2
YANG F	2
YOUNG S	2
YU X	2
ZHANG C	2

9.8 Publication Rate & Top Author Affiliation Country



COUNTRY	PAPERS	TOTAL CITES	CITES PER PAPER
USA	591	2943	5.0
PEOPLES R CHINA	376	1559	4.1
GERMANY	239	910	3.8
JAPAN	227	1076	4.7
SPAIN	159	1137	7.2
ENGLAND	155	906	5.8
CANADA	150	789	5.3
FRANCE	125	578	4.6
INDIA	120	361	3.0
IRAN	117	882	7.5
AUSTRALIA	98	684	7.0
BRAZIL	92	486	5.3
TURKEY	89	166	1.9
SOUTH KOREA	86	262	3.0
ITALY	83	357	4.3
RUSSIA	70	147	2.1
POLAND	59	151	2.6
SWEDEN	54	424	7.9
SOUTH AFRICA	46	117	2.5
NETHERLANDS	44	550	12.5
TAIWAN	42	292	7.0
SWITZERLAND	40	257	6.4
EGYPT	38	202	5.3
CZECH REPUBLIC	34	111	3.3
FINLAND	34	147	4.3
GREECE	32	353	11.0
NORWAY	32	166	5.2
SCOTLAND	32	302	9.4
PORTUGAL	30	342	11.4
BELGIUM	27	173	6.4
ARGENTINA	23	212	9.2
DENMARK	23	197	8.6
ROMANIA	22	72	3.3
ISRAEL	21	272	13.0
CHILE	20	156	7.8
NEW ZEALAND	18	208	11.6
WALES	17	150	8.8
MEXICO	15	98	6.5
UKRAINE	14	84	6.0
NIGERIA	13	28	2.2
PAKISTAN	13	17	1.3
JORDAN	12	22	1.8
THAILAND	12	36	3.0
ZIMBABWE	11	24	2.2
AUSTRIA	10	47	4.7
INDONESIA	10	9	0.9

9.9 Top Affiliations

MARINE MINERAL - EU AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
UNIV BREMEN	20	191	9.6
CSIC	19	253	13.3
UNIV CORDOBA	16	234	14.6
UNIV GRANADA	16	52	3.3
CNRS	15	234	15.6
UNIV BARCELONA	14	56	4.0
PRAGUE INST CHEM TECHNOL	13	43	3.3
GEOL SURVEY FINLAND	12	31	2.6
STOCKHOLM UNIV	12	97	8.1
CNR	11	33	3.0
UNIV CADIZ	11	99	9.0
UNIV GHENT	11	84	7.6
UNIV NEWCASTLE UPON TYNE	11	127	11.5
UNIV PARIS 06	11	115	10.5
UNIV W BOHEMIA	11	49	4.5
ETH	10	53	5.3
UNIV HUELVA	10	25	2.5
UNIV KIEL	10	23	2.3
UNIV ROMA LA SAPIENZA	10	140	14.0
UNIV SOUTHAMPTON	10	121	12.1
ALFRED WEGENER INST POLAR & MARINE RES	9	65	7.2
LUND UNIV	9	56	6.2
UFZ	9	42	4.7
UNIV ABERDEEN	9	125	13.9
UNIV HAMBURG	9	61	6.8
UNIV SALAMANCA	9	103	11.4
ARISTOTLE UNIV THESSALONIKI	8	118	14.8
MAX PLANCK INST MARINE MICROBIOL	8	130	16.3
NEWCASTLE UNIV	8	7	0.9
SWEDISH UNIV AGR SCI	8	113	14.1
UNIV EDINBURGH	8	85	10.6
UNIV MILAN	8	20	2.5
UNIV OSLO	8	33	4.1
INRA	7	29	4.1
UCL	7	37	5.3
UNIV COLOGNE	7	65	9.3
UNIV GOTTINGEN	7	81	11.6
UNIV HELSINKI	7	96	13.7
UNIV LAUSANNE	7	28	4.0
UNIV LONDON IMPERIAL COLL SCI TECHNOL & M	7	14	2.0
UNIV PLYMOUTH	7	36	5.1
UNIV WAGENINGEN & RES CTR	7	91	13.0
UPPSALA UNIV	7	61	8.7
BUR RECH GEOL & MINIERES	6	37	6.2
CHINESE ACAD SCI	6	59	9.8
COMENIUS UNIV	6	78	13.0
CRANFIELD UNIV	6	20	3.3
FORSCHUNGSZENTRUM KARL SRUHE	6	25	4.2
GEOFORSCHUNGSZENTRUM POTSDAM	6	53	8.8
KATHOLIEKE UNIV LEUVEN	6	22	3.7

MARINE MINERAL - ROW AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
CHINESE ACAD SCI	66	494	7.5
US GEOL SURVEY	50	724	14.5
USDA ARS	31	297	9.6
RUSSIAN ACAD SCI	30	77	2.6
CENT CHINA NORMAL UNIV	20	308	15.4
PENN STATE UNIV	20	351	17.6
UNIV TEHRAN	20	206	10.3
CHINA UNIV GEOSCI	19	66	3.5
HENAN NORMAL UNIV	19	255	13.4
UNIV FLORIDA	18	317	17.6
US EPA	18	119	6.6
INDIAN INST TECHNOL	17	174	10.2
UNIV TOKYO	16	186	11.6
ISLAMIC AZAD UNIV	15	41	2.7
WUHAN UNIV	14	100	7.1
UNIV WATERLOO	13	146	11.2
ZHEJIANG UNIV	13	140	10.8
ERCIEYES UNIV	12	66	5.5
MEM UNIV NEWFOUNDLAND	12	62	5.2
RUTGERS STATE UNIV	12	112	9.3
UNIV SCI & TECHNOL CHINA	12	135	11.3
WOODS HOLE OCEANOGRAPH INST	12	113	9.4
TOHOKU UNIV	11	140	12.7
TONGJI UNIV	11	78	7.1
UNIV ALBERTA	11	158	14.4
UNIV ARKANSAS	11	140	12.7
UNIV CALIF SANTA CRUZ	11	132	12.0
UNIV SCI & TECHNOL BEIJING	11	282	25.6
CENT S UNIV	10	12	1.2
COLORADO STATE UNIV	10	138	13.8
MICHIGAN STATE UNIV	10	96	9.6
SRI VENKATESWARA UNIV	10	45	4.5
TARBIAT MODARES UNIV	10	55	5.5
TEXAS A&M UNIV	10	124	12.4
UNIV TASMANIA	10	75	7.5
UNIV VICTORIA	10	21	2.1
UNIV ZIMBABWE	10	24	2.4
ARS	9	141	15.7
IRAN UNIV SCI & TECHNOL	9	444	49.3
KOREA UNIV	9	35	3.9
NAGOYA UNIV	9	57	6.3
NANJING UNIV	9	42	4.7
UNIV BREMEN	9	96	10.7
UNIV CALIF BERKELEY	9	161	17.9
UNIV CALIF DAVIS	9	85	9.4
UNIV ESTADUAL LONDRINA	9	28	3.1
UNIV SAO PAULO	9	81	9.0
AIN SHAMS UNIV	8	66	8.3
CALTECH	8	159	19.9
GAZIOSMANPASA UNIV	8	32	4.0

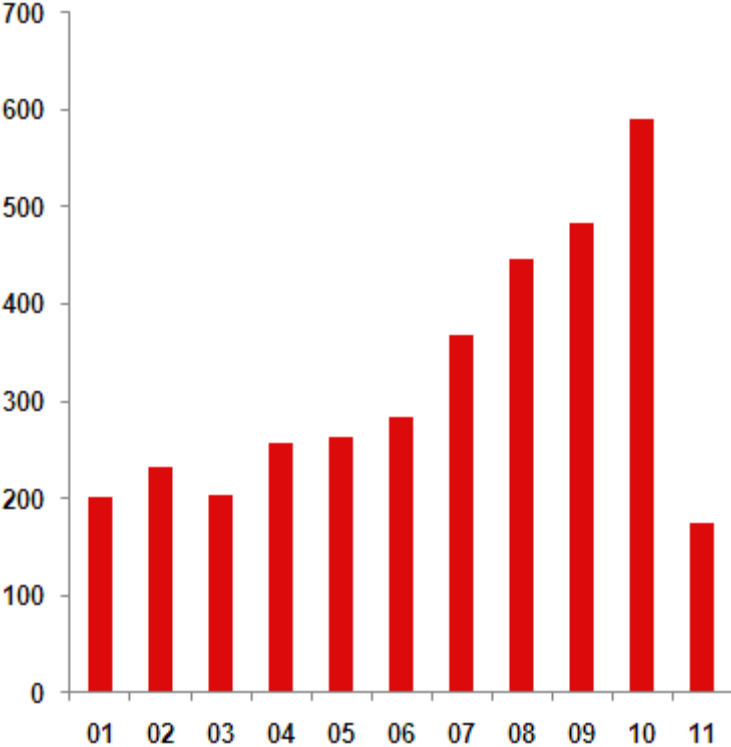
9.10 Top Authors

MARINE MINERAL - EU INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
MAKRLIK, E	11	49	4.5
VANURA, P	11	49	4.5
DE CASTRO, M D L	8	100	12.5
YOUNGER, P L	8	75	9.4
DOLD, B	7	28	4.0
WAGNER, T	7	48	6.9
SCHOLZ, M	6	46	7.7
ALOISI, G	5	48	9.6
ANTHEMIDIS, A N	5	153	30.6
BORRULL, F	5	76	15.2
DAMSTE, J S S	5	127	25.4
HAECKEL, M	5	41	8.2
KAUPPILA, T	5	15	3.0
OHLANDER, B	5	20	4.0
PROCHASKA, K	5	19	3.8
RUBIO, S	5	95	19.0
SPANGENBERG, J E	5	17	3.4
STASZAK, K	5	19	3.8
TURNER, A	5	17	3.4
BARCELO, D	4	168	42.0
BECKMANN, B	4	32	8.0
BETZLER, C	4	11	2.8
CURINI, R	4	75	18.8
FABRIOL, R	4	5	1.3
GARCIA-LOPEZ, M	4	80	20.0
HILLER, E	4	3	0.8
HOFMANN, P	4	45	11.3
KALBITZ, K	4	8	2.0
LI, A C	4	45	11.3
MACHOVIC, V	4	15	3.8
MARCE, R M	4	70	17.5
NIETO, J M	4	11	2.8
PAVLOVA, G	4	36	9.0
POPP, P	4	17	4.3
RODRIGUEZ, I	4	80	20.0
SCHOUTEN, S	4	115	28.8
SELUCKY, P	4	10	2.5
TISHCHENKO, P	4	36	9.0
WALLMANN, K	4	36	9.0
WAN, S M	4	45	11.3
ALVAREZ-ROGEL, J	3	8	2.7
ANDERSEN, F O	3	13	4.3
AYORA, C	3	7	2.3
BATTY, L C	3	44	14.7
BECKER, H J	3	26	8.7
BEHRENDT, H	3	1	0.3
BEINER, K	3	9	3.0
BERMEJO-BARRERA, P	3	13	4.3
BERNASCONI, S M	3	52	17.3
BOGIALLI, S	3	43	14.3
BOROWSKI, C	3	16	5.3

MARINE MINERAL - ROW INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
LIANG, P	19	307	16.2
SHEMIRANI, F	12	187	15.6
YAMINI, Y	12	111	9.3
SOYLAK, M	11	66	6.0
JIANG, G B	10	309	30.9
WANG, Y	10	53	5.3
ZHOU, Q X	10	379	37.9
LEE, J S	9	23	2.6
LI, Q M	9	11	1.2
ASSADI, Y	8	444	55.5
CAI, Y Q	8	286	35.8
HAWTHORNE, S B	8	413	51.6
LI, J	8	71	8.9
LIU, J F	8	275	34.4
XIAO, J P	8	219	27.4
XU, J	8	124	15.5
ZHANG, Y	8	42	5.3
ALPERS, C N	7	56	8.0
CAO, J	7	66	9.4
CODLING, E E	7	19	2.7
HU, B	7	65	9.3
KIM, S J	7	79	11.3
LI, Z J	7	31	4.4
LOVE, D	7	23	3.3
YIN, J Y	7	94	13.4
ZHANG, L	7	23	3.3
AYDIN, F	6	10	1.7
AYDIN, I	6	10	1.7
CHANG, X J	6	45	7.5
CHEN, H	6	8	1.3
ELCI, L	6	39	6.5
EL-SHAHAT, M F	6	65	10.8
FANG, G Z	6	72	12.0
HORIKOSHI, K	6	280	46.7
HOSSEINI, M R M	6	330	55.0
HU, Q F	6	91	15.2
JAMALI, M R	6	213	35.5
JAMIESON, H E	6	67	11.2
MOGHIMI, A	6	17	2.8
TABATA, M	6	24	4.0
TAKAI, K	6	280	46.7
WANG, S	6	72	12.0
YAMAGUCHI, M	6	21	3.5
YANG, G Y	6	92	15.3
CHEN, X	5	22	4.4
CHIRANJEEVI, P	5	44	8.8
CHUNG, N H	5	24	4.8
COURCHESNE, F	5	60	12.0
DE MELO, W J	5	9	1.8
DELANEY, M L	5	43	8.6
DIAS, B P	5	22	4.4

10 Desalination

10.1 Invention Velocity



10.2 Priority Country Analysis

PRIORITY COUNTRIES	INVENTIONS	TOTAL CITES	CITES PER INVENTION
CHINA	1129	6	0.0
JAPAN	1069	97	0.1
UNITED STATES OF AMERICA	921	733	0.8
PATENT CO-OPERATION TREATY	617	157	0.3
KOREA, REPUBLIC OF	301	10	0.0
GERMANY	270	38	0.1
RUSSIAN FEDERATION	108	1	0.0
EUROPEAN PATENT OFFICE	106	39	0.4
SPAIN	106	10	0.1
FRANCE	105	63	0.6
AUSTRALIA	86	39	0.5
UNITED KINGDOM	85	7	0.1
CANADA	49	1	0.0
ISRAEL	35	38	1.1
NORWAY	33	36	1.1
BRAZIL	29	2	0.1
AUSTRIA	23	6	0.3
SWEDEN	20	9	0.5
SOUTH AFRICA	19	1	0.1
ITALY	18	8	0.4
NETHERLANDS	17	6	0.4
TAIWAN	15	2	0.1
MEXICO	10	0	0.0
SINGAPORE	9	1	0.1
UKRAINE	9	0	0.0
DENMARK	7	0	0.0
GREECE	7	3	0.4
SWITZERLAND	7	0	0.0
FINLAND	6	3	0.5
EURASIAN PATENT ORGANIZATION	5	0	0.0
MOROCCO	4	0	0.0
NEW ZEALAND	4	1	0.3
POLAND	4	0	0.0
ROMANIA	4	0	0.0
INDIA	3	0	0.0
PORTUGAL	3	0	0.0
BULGARIA	2	0	0.0
CHILE	2	0	0.0
CROATIA	2	0	0.0
CZECH REPUBLIC	2	0	0.0
GC	2	0	0.0
HUNGARY	2	0	0.0
AFRICAN REGIONAL INTELLECTUAL PROPERTY ORGANIZATION	1	0	0.0
ARUBA	1	0	0.0
BELGIUM	1	7	7.0
CYPRUS	1	0	0.0
EGYPT	1	0	0.0
ICELAND	1	0	0.0
IRELAND	1	0	0.0
SLOVAKIA	1	0	0.0
SLOVENIA	1	0	0.0

10.3 Top Assignees

TOP ASSIGNEES	TOTAL
TORAY IND INC	129
NITTO DENKO CORP	89
KURITA WATER IND LTD	72
ORGANO CORP	66
MITSUBISHI GROUP OF COMPANIES	46
EBARA CORP	42
HITACHI	34
DOOSAN HEAVY IND&CONSTR CO LTD	33
CHINA SHENHUA ENERGY CO LTD	27
TOYOBO KK	27
TIANJIN BAOCHENG GROUP CO LTD	25
GENERAL ELECTRIC CO	19
BINHAI ENVIRONMENTAL PROTECTION EQUIPMENT C	18
TOSHIBA	16
SUMITOMO GROUP	13
MARINE DESALINATION SYSTEMS LLC	12
SIEMENS	12
ASAHI KASEI KK	11
BASF	11
NIPPON WATER TREATMENT CO LTD	11
CHINESE ACADEMY OF SCIENCES	10
WATER STANDARD CO LLC	10
BAYER GROUP	9
SAMSUNG	9
SHINKO PANTEC CO LTD	9
UNIV SHANGHAI JIAOTONG	9
BP GLOBAL	8
DAINICHISEIKA COLOR & CHEM MFG	8
JIANGSU SHUANGLIANG AIR CONDITIONING EQU	8
PANASONIC CORP	8
DAISEN MEMBRANE SYSTEMS KK	7
MITSUMI ENG & SHIPBUILDING CO	7
NALCO CHEM CO	7
NALCO CO	7
SAEHAN IND INC	7
SEKISUI CHEM IND CO LTD	7
UNIV DALIAN	7
UNIV ZHEJIANG	7
IDE TECHNOLOGIES LTD	6
MIURA KOGYO KK	6
SALINE WATER CONVERSION CORP	6
UNIV BEIJING	6
UNIV TIANJIN	6
UOP LLC	6

10.4 Top EU Academic Institutes

DESALINATION -EU ACADEMIC INSTITUTES	INVENTIONS
FRAUNHOFER GES FOERDERUNG ANGEWAN	3
UNIV SURREY	3
UNIV DELFT TECH	2
UNIV FAR E SUPPLY NETWORK	2
UNIV GOU VPO SIBIRSK GOS TEKHN	2
UNIV UFA OIL TECH	2
UNIV URALS TECH	2
CNRS CENT NAT RECH SCI	1
MAX PLANCK GES FOERDERUNG WISSENSC	1
MOZHAIKII MILITARY COSMIC ACAD	1
UNIV AIX-MARSEILLE	1
UNIV ALTAI TECH	1
UNIV CATALUNYA POLITECNICA	1
UNIV COLLEGE CARDIFF	1
UNIV DALIAN	1
UNIV KUBAN	1
UNIV LAND MANAGEMENT	1
UNIV QINGHUA	1
UNIV ST PETERSBURG	1
UNIV STUTTGART	1
UNIV TECH MUENCHEN	1
UNIV TECHNICKA KOSICIACH	1
UNIV TYUMEN	1
VOLG ARCHITECTURE BUILDING ACAD	1
VORON TECHN ACAD	1

10.5 Top ROW Academic Institutes

DESALINATION -ROW ACADEMIC INSTITUTES	INVENTIONS
UNIV TIANJIN	18
CHINESE ACADEMY OF SCIENCES	13
UNIV DALIAN	12
UNIV ZHEJIANG	11
UNIV SHANGHAI JIAOTONG	10
UNIV CHINA	9
UNIV NANJING	8
UNIV SINGAPORE NAT	8
UNIV BEIJING	7
UNIV TIANJIN SCI & TECHNOLOGY	7
UNIV CALIFORNIA	6
UNIV QINGHUA	6
UNIV SHANGHAI	6
UNIV XIAN JIAOTONG	6
SHAOXING ARTS & SCI ACAD	4
UNIV GUANGDONG OCEAN	4
UNIV NANKAI	4
UNIV NORTH CHINA ELECTRIC POWER	4
UNIV QINGDAO	4
UNIV SHANGHAI MARITIME	4
UNIV WUHAN SCI&TECHNOLOGY	4
UNIV FLORIDA	3
UNIV NEVADA SYSTEM HIGHER EDUCATION	3
UNIV WUHAN	3
CHINESE PLA LOGISTICS ENG COLLEGE	2
HARBIN INST TECHNOLOGY	2
TECHNION RES & DEV FOUND LTD	2
TIANJIN ENVIRONMENTAL PROTECTION SCI INS	2
UNIV & COMMUNITY COLLEGE	2
UNIV BEN-GURION NEGEV	2
UNIV CHINA PETROLEUM EAST CHINA	2
UNIV FUDAN	2
UNIV FUZHOU	2
UNIV HEHAI	2
UNIV JIANGSU	2
UNIV JILIN	2
UNIV KOOKMIN IND ACAD COOP FOUND	2
UNIV KWANDONG IND FOUNDATION	2
UNIV MARYLAND	2
UNIV NORTHWEST	2
UNIV OKAYAMA	2
UNIV SICHUAN	2
UNIV SOUTH CAROLINA	2
UNIV SOUTH CHINA SCI&ENG	2
UNIV TEXAS	2
UNIV TIANJIN IND	2
UNIV TIANJIN POLYTECHNIC	2
UNIV TONGJI	2

10.6 Cites per Inventions Analysis

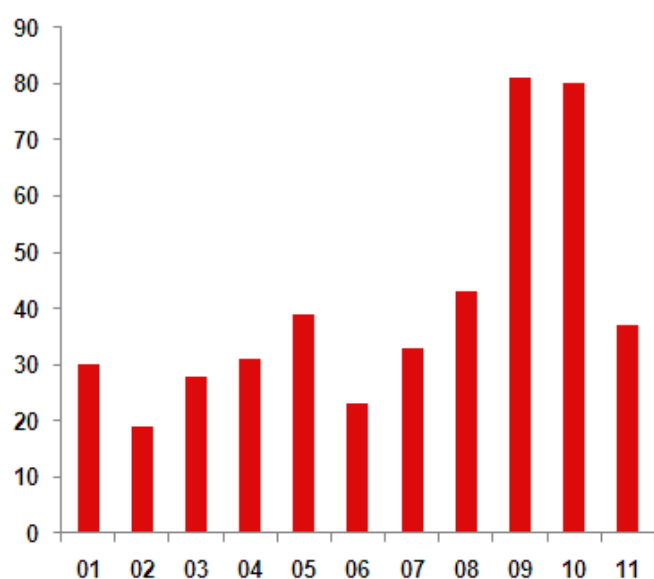
DESALINATION ACADEMIC INSTITUTES	INVENTIONS	TOTAL CITES	CITES PER PATENT
UNIV TIANJIN	18	0	0.0
UNIV SINGAPORE NAT	16	42	2.6
UNIV DALIAN	13	2	0.2
CHINESE ACADEMY OF SCIENCES	13	0	0.0
UNIV ZHEJIANG	11	0	0.0
UNIV NANJING	10	0	0.0
UNIV SHANGHAI JIAOTONG	10	0	0.0
UNIV CHINA	9	0	0.0
UNIV QINGHUA	8	0	0.0
UNIV CALIFORNIA	7	46	6.6
UNIV BEIJING	7	0	0.0
UNIV TIANJIN SCI & TECHNOLOGY	7	0	0.0
UNIV SURREY	6	32	5.3
UNIV SHANGHAI	6	0	0.0
UNIV XIAN JIAOTONG	6	0	0.0
UNIV FLORIDA	5	8	1.6
TECHNION RES & DEV FOUND LTD	5	4	0.8
FRAUNHOFER GES FOERDERUNG ANGEWANDTEN	5	0	0.0
UNIV NEVADA SYSTEM HIGHER EDUCATION	4	12	3.0
UNIV DELFT TECH	4	3	0.8
UNIV BEN-GURION NEGEV	4	2	0.5
SHAOXING ARTS & SCI ACAD	4	0	0.0
UNIV GUANGDONG OCEAN	4	0	0.0
UNIV NANKAI	4	0	0.0
UNIV NORTH CHINA ELECTRIC POWER	4	0	0.0
UNIV QINGDAO	4	0	0.0
UNIV SHANGHAI MARITIME	4	0	0.0
UNIV WUHAN SCI&TECHNOLOGY	4	0	0.0
UNIV YALE	4	0	0.0
UNIV & COMMUNITY COLLEGE	3	24	8.0
UNIV TEXAS	3	8	2.7
UNIV COLLEGE CARDIFF	3	3	1.0
UNIV MARYLAND	3	1	0.3
UNIV WUHAN	3	0	0.0
UNIV STUTTGART	2	18	9.0
UNIV SOUTH CAROLINA	2	16	8.0
UNIV AUSTRALIAN NAT	2	2	1.0
UNIV TOLEDO	2	2	1.0
CHINESE PLA LOGISTICS ENG COLLEGE	2	0	0.0
CNRS CENT NAT RECH SCI	2	0	0.0
HARBIN INST TECHNOLOGY	2	0	0.0
MASSACHUSETTS INST TECHNOLOGY	2	0	0.0
TIANJIN ENVIRONMENTAL PROTECTION SCI INS	2	0	0.0
UNIV AIX-MARSEILLE	2	0	0.0
UNIV CHINA PETROLEUM EAST CHINA	2	0	0.0
UNIV DREXEL	2	0	0.0
UNIV FAR E SUPPLY NETWORK	2	0	0.0
UNIV FUDAN	2	0	0.0
UNIV FUZHOU	2	0	0.0
UNIV GEORGIA RES FOUND INC	2	0	0.0

10.7 Inventor Analysis

DESALINATION -EU ACADEMIC INVENTORS	INVENTIONS
AKULSHIN M D	2
KHANGILDIN R I	2
OBZHIROV A I	2
PINEGINA A N	2
POLEZHAEV YU M	2
RAKHMANKULOV D L	2
RUSINOVA A A	2
VOYNOV A N	2
VOYNOV N A	2
ZENTSOV V N	2
ZENTSOVA EH V	2
ZHUKOV A V	2
ZVONAREV M I	2
AL-MAYAHI A	1
ALLEGRE C	1
ALMAYAHI A	1
ALTAEE A	1
ANTONIETTI M	1
BAI M	1
BAI X	1
BISPO I	1
BO Y	1
BUCHOVECKA D	1
CHARBIT F	1
CHENGWU Y	1
CUI F	1
DE GRAAUW J	1
EIGENBERGER G	1
FOMICHEV V T	1
FRANTSEVA T P	1
FROHLICH L	1
FRY J	1
GOLDER M	1
GOLOMIDOV M A	1
GRABOVSKIY A	1
HANSEL J	1
HU K	1
JANSEN J C	1
JONES G	1
KAPTEIJN F	1
KARPEZA A G	1
KERTMAN S V	1
KHAJAVI S	1
KHAYRETDINOV A N	1
KLYUCHNIKOV A I	1
KLYUCHNIKOVA D V	1
KRETOV I T	1
KROISS A	1
KUEHN M	1
LUSTIG K	1

DESALINATION - ROW ACADEMIC INVENTORS	INVENTIONS
WANG S	22
WANG Y	15
WANG J	10
LI P	8
LIU Y	8
WANG Z	8
MA J	7
ZHANG Z	7
LI Y	6
LU H	6
WANG D	6
WANG X	6
XIE L	6
XU S	6
YANG Y	6
ZHANG L	6
CHEN J	5
FANG J	5
GUO Y	5
LI W	5
LI X	5
SHI L	5
WANG X CN	5
XU D	5
YANG H	5
ZHANG H	5
ZHANG Y	5
CHENG H	4
DONG H	4
GAO X	4
GONG Y	4
JIE L	4
LI L	4
LIU Z	4
SUN J	4
XU Y	4
YI S	4
ZHANG Y CN	4
ZHOU X	4
ZHOU Z	4
BAO S CN	3
CATH T Y	3
CHAKRABORTY A	3
CHEN H	3
CHEN L	3
CHEN T CN	3
CHEN X	3
CHILDRESS A E	3
FAN Y	3
FU B	3

10.8 Publication Rate & Top Author Affiliation Country



COUNTRY	PAPERS	TOTAL CITES	CITES PER PAPER
USA	83	502	6.0
PEOPLES R CHINA	37	175	4.7
SOUTH KOREA	27	73	2.7
AUSTRALIA	24	171	7.1
FRANCE	23	183	8.0
JAPAN	22	107	4.9
SINGAPORE	22	129	5.9
ENGLAND	21	143	6.8
ISRAEL	21	59	2.8
SPAIN	19	110	5.8
EGYPT	18	59	3.3
INDIA	18	148	8.2
POLAND	15	64	4.3
ITALY	13	56	4.3
SAUDI ARABIA	13	115	8.8
TUNISIA	13	66	5.1
JORDAN	12	139	11.6
GERMANY	10	60	6.0
BRAZIL	9	21	2.3
IRAN	9	12	1.3
NETHERLANDS	9	35	3.9
BAHRAIN	7	76	10.9
KUWAIT	7	32	4.6
TURKEY	7	50	7.1
BELGIUM	6	41	6.8
CANADA	6	35	5.8
MALAYSIA	6	83	13.8
RUSSIA	6	4	0.7
MEXICO	5	14	2.8
SCOTLAND	5	19	3.8
TAIWAN	5	28	5.6
ROMANIA	4	1	0.3
GREECE	3	56	18.7
MOROCCO	3	20	6.7
OMAN	3	68	22.7
PORTUGAL	3	34	11.3
WALES	3	19	6.3
ARGENTINA	2	8	4.0
COLOMBIA	2	6	3.0
LIBYA	2	11	5.5
NORWAY	2	11	5.5
PAKISTAN	2	7	3.5
SOUTH AFRICA	2	35	17.5
U ARAB EMIRATES	2	4	2.0

10.9 Top Affiliations

DESALINATION - EU AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
SILESIAN TECH UNIV	9	28	3.1
UNIV NOTTINGHAM	7	93	13.3
UNIV ALICANTE	4	41	10.3
ASTON UNIV	3	3	1.0
DELFT UNIV TECHNOL	3	1	0.3
ISTANBUL TECH UNIV	3	24	8.0
UNIV BRISTOL	3	48	16.0
UNIV CALABRIA	3	31	10.3
UNIV EDINBURGH	3	17	5.7
UNIV KEBANGSAAN MALAYSIA	3	82	27.3
UNIV SAO PAULO	3	19	6.3
WETSUS	3	28	9.3
AGR UNIV ATHENS	2	33	16.5
CNRS	2	10	5.0
CSIC	2	17	8.5
DOW DEUTSCHLAND GMBH & CO	2	29	14.5
FAC SCI MONASTIR	2	24	12.0
HERIOT WATT UNIV	2	17	8.5
INST NATL SCI APPL	2	37	18.5
JORDAN UNIV SCI & TECHNOL	2	78	39.0
KATHOLIEKE UNIV LEUVEN	2	14	7.0
NATL UNIV SINGAPORE	2	27	13.5
SWANSEA UNIV	2	3	1.5
UNIV GENOA	2	14	7.0
UNIV LA LAGUNA	2	15	7.5
UNIV LAS PALMAS DE GRAN CANARIA	2	15	7.5
UNIV LONDON IMPERIAL COLL SCI TECHNOL & M	2	14	7.0
UNIV MONTPELLIER 2	2	24	12.0
UNIV POLITECN VALENCIA	2	3	1.5
UNIV TEXAS AUSTIN	2	43	21.5
UNIV TOULOUSE 3	2	1	0.5
UNIV WOLLONGONG	2	25	12.5
VLAAMSE INSTELLING TECHNOL ONDERZOEK	2	11	5.5
WAGENINGEN UNIV	2	27	13.5
ZONGULDAK KARAELEMAS UNIV	2	16	8.0
AGR RES ORG	1	12	12.0
AGR UNIV NORWAY	1	3	3.0
AKVAFORSK	1	8	8.0
AKZO NOBEL CHEM RES	1	7	7.0
AL QUDS UNIV	1	7	7.0
AMER UNIV CAIRO	1	0	0.0
ANADOLU UNIV	1	0	0.0
AO SAN GERARDO	1	3	3.0
APPL MAT SE ASIA LTD	1	2	2.0
AUSTRALIAN NATL UNIV	1	17	17.0
BELGIAN CERAM RES CTR	1	0	0.0
BERG UNIV WUPPERTAL	1	18	18.0
BLACK & VEATCH CONSULTING ENGINEERS	1	16	16.0
BRUNEL UNIV	1	0	0.0

DESALINATION - ROW AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
NATL UNIV SINGAPORE	14	122	8.7
UNIV CALIF LOS ANGELES	13	128	9.8
TECHNION ISRAEL INST TECHNOL	10	29	2.9
CHINESE ACAD SCI	9	30	3.3
UNIV TEXAS AUSTIN	9	55	6.1
UNIV NEW S WALES	7	54	7.7
KOREA UNIV	5	6	1.2
UNIV ALEXANDRIA	5	20	4.0
BEN GURION UNIV NEGEV	4	16	4.0
COLORADO SCH MINES	4	112	28.0
HANYANG UNIV	4	7	1.8
IEM RES	4	4	1.0
JORDAN UNIV SCI & TECHNOL	4	79	19.8
KUWAIT INST SCI RES	4	21	5.3
NANYANG TECHNOL UNIV	4	27	6.8
NATL RES CTR	4	22	5.5
UNIV KEBANGSAAN MALAYSIA	4	83	20.8
UNIV SAO PAULO	4	19	4.8
VIRGINIA POLYTECH INST & STATE UNIV	4	6	1.5
YALE UNIV	4	165	41.3
AGR RES ORG	3	21	7.0
CSIRO MAT SCI & ENGN	3	3	1.0
GIST	3	1	0.3
INDIAN INST TECHNOL	3	33	11.0
INRST	3	28	9.3
KUBAN STATE UNIV	3	1	0.3
KUWAIT UNIV	3	13	4.3
MEKOROT WATER CO LTD	3	6	2.0
MIT	3	13	4.3
NEW JERSEY INST TECHNOL	3	20	6.7
NEW MEXICO STATE UNIV	3	9	3.0
OCEAN UNIV CHINA	3	1	0.3
PENN STATE UNIV	3	27	9.0
RUSSIAN ACAD SCI	3	3	1.0
TAFILA TECH UNIV	3	9	3.0
TAMKANG UNIV	3	22	7.3
TSINGHUA UNIV	3	24	8.0
UNIV CENT FLORIDA	3	26	8.7
UNIV COLORADO	3	35	11.7
UNIV NOTTINGHAM	3	82	27.3
UNIV WOLLONGONG	3	39	13.0
YAMAGUCHI UNIV	3	70	23.3
ZHEJIANG SCI TECH UNIV	3	16	5.3
AUSTRALIAN NATL UNIV	2	33	16.5
BEIJING INST CLOTHING TECHNOL	2	4	2.0
CENT SALT & MARINE CHEM RES INST	2	25	12.5
CTR ADV WATER TECHNOL	2	1	0.5
E CHINA UNIV SCI & TECHNOL	2	6	3.0
EKOSTAR NAUTEKH INC	2	3	1.5

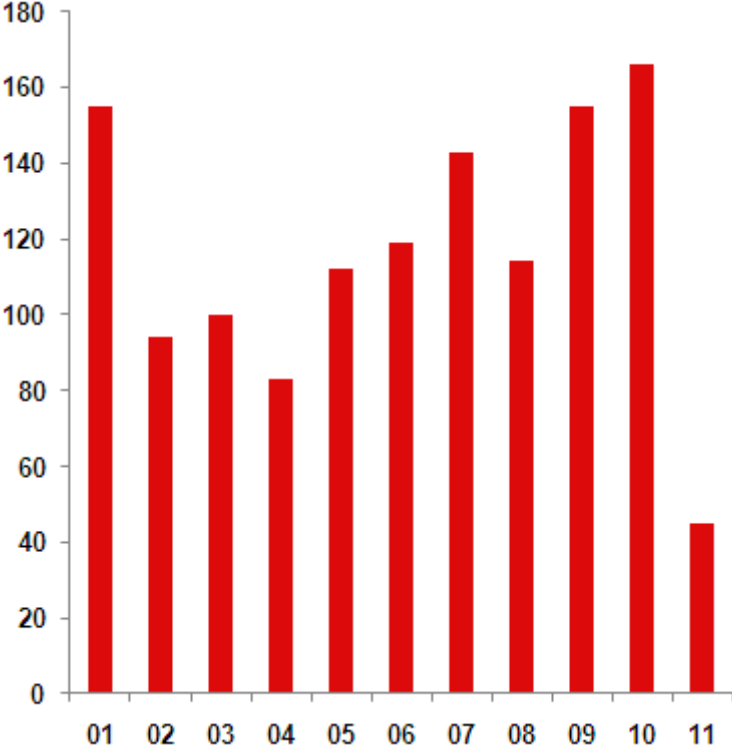
10.10 Top Authors

DESALINATION - EU INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
TUREK, M	10	29	2.9
HILAL, N	6	93	15.5
DYDO, P	4	20	5.0
SCHAFFER, A I	4	25	6.3
ALDAZ, A	3	38	12.7
AL-ZOUBI, H	3	82	27.3
DARWISH, N A	3	82	27.3
DAVIES, P A	3	3	1.0
EXPOSITO, E	3	38	12.7
GALLUD, F	3	38	12.7
GARCIA-GARCIA, V	3	38	12.7
KOYUNCU, I	3	24	8.0
MOHAMMAD, A W	3	82	27.3
MONTIEL, V	3	38	12.7
ORTIZ, J M	3	38	12.7
RICHARDS, B S	3	25	8.3
AL-ANEZI, K	2	11	5.5
BORGES, F J	2	1	0.5
BRAUNS, E	2	11	5.5
CABASSUD, C	2	37	18.5
CAKMAKCI, M	2	16	8.0
CHAUDHRY, A S	2	10	5.0
COCCHINI, U	2	14	7.0
DERATANI, A	2	24	12.0
DRIOLI, E	2	4	2.0
FERJANI, E	2	24	12.0
FREEMAN, B D	2	43	21.5
GREENLEE, L F	2	43	21.5
GRYTA, M	2	22	11.0
GUARDANI, R	2	1	0.5
HOSSAIN, A K	2	3	1.5
JAOUEN, P	2	12	6.0
KAYAALP, N	2	16	8.0
LAWLER, D F	2	43	21.5
LIVINGSTON, A G	2	14	7.0
MACEDONIO, F	2	4	2.0
METZ, S J	2	28	14.0
MOULIN, P	2	43	21.5
NICOLELLA, C	2	14	7.0
QUEMENEUR, F	2	12	6.0
REDONDO, J A	2	29	14.5
ROUX-DE BALMANN, H	2	1	0.5
VEERMAN, J	2	28	14.0
VEZA, J M	2	15	7.5
WEBSTER, A J F	2	10	5.0
AAMLID, D	1	3	3.0
ABU ARABI, M	1	67	67.0
AHMAD, M	1	1	1.0
AKGUL, D	1	3	3.0
AKTAS, H	1	12	12.0

DESALINATION - ROW INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
COHEN, Y	9	99	11.0
FREEMAN, B D	9	55	6.1
CHUNG, T S	7	72	10.3
WANG, K Y	6	72	12.0
GAO, C J	5	26	5.2
SEMIAT, R	5	22	4.4
TANAKA, Y	5	4	0.8
AL-ZOUBI, H	4	83	20.8
CATH, T Y	4	121	30.3
ELIMELECH, M	4	165	41.3
HOEK, E M V	4	67	16.8
KIM, J H	4	1	0.3
KIM, S	4	67	16.8
MCGRATH, J E	4	6	1.5
RICHARDS, B S	4	52	13.0
SCHAFFER, A I	4	52	13.0
ZHOU, Y	4	26	6.5
BOUGUECHA, S	3	29	9.7
CHRISTOFIDES, P D	3	26	8.7
COOK, J	3	2	0.7
DARWISH, N A	3	82	27.3
DHAHBI, M	3	34	11.3
EBRAHIM, S	3	19	6.3
FU, J Q	3	4	1.3
HAMROUNI, B	3	34	11.3
HASSAN, A M	3	42	14.0
HILAL, N	3	82	27.3
HOU, D Y	3	6	2.0
HRAYSHAT, E S	3	9	3.0
KIM, D H	3	0	0.0
KIM, S H	3	0	0.0
LEE, C H	3	2	0.7
LEE, S	3	11	3.7
LEE, Y G	3	1	0.3
LUAN, Z K	3	6	2.0
MOHAMMAD, A W	3	82	27.3
MOHSEN, M S	3	30	10.0
NAIM, M M	3	15	5.0
PARK, H B	3	6	2.0
RAHARDIANTO, A	3	48	16.0
SAFAR, M	3	19	6.3
SHEIKHOLESLAMI, R	3	18	6.0
SIRKAR, K K	3	20	6.7
WANG, J	3	6	2.0
YANG, Q	3	40	13.3
AGUIRRE, P A	2	8	4.0
AL-SOFI, M A	2	39	19.5
AL-WAZZAN, Y	2	8	4.0
BANG, J	2	0	0.0
BICK, A	2	15	7.5

11 Maritime Protection

11.1 Invention Velocity



11.2 Priority Country Analysis

PRIORITY COUNTRIES	INVENTIONS	TOTAL CITES	CITES PER INVENTION
JAPAN	842	28	0.0
KOREA, REPUBLIC OF	374	7	0.0
UNITED STATES OF AMERICA	185	90	0.5
PATENT CO-OPERATION TREATY	115	17	0.1
CHINA	109	1	0.0
RUSSIAN FEDERATION	69	2	0.0
GERMANY	53	12	0.2
UNITED KINGDOM	34	13	0.4
EUROPEAN PATENT OFFICE	28	1	0.0
FRANCE	23	2	0.1
CANADA	18	0	0.0
NETHERLANDS	16	5	0.3
SPAIN	14	3	0.2
NEW ZEALAND	11	3	0.3
AUSTRALIA	10	0	0.0
SOUTH AFRICA	8	0	0.0
ITALY	7	0	0.0
MEXICO	7	0	0.0
BRAZIL	6	0	0.0
GREECE	6	0	0.0
DENMARK	5	0	0.0
TAIWAN	5	0	0.0
BULGARIA	4	0	0.0
POLAND	4	0	0.0
UKRAINE	4	0	0.0
IRELAND	3	0	0.0
PORTUGAL	3	0	0.0
AFRICAN REGIONAL INTELLECTUAL PROPERTY ORGANIZATION	2	0	0.0
ARGENTINA	2	0	0.0
BELGIUM	2	0	0.0
HONG KONG	2	0	0.0
INDIA	2	0	0.0
SWEDEN	2	3	1.5
EURASIAN PATENT ORGANIZATION	1	0	0.0
ISRAEL	1	0	0.0
LATVIA	1	0	0.0
MONACO	1	0	0.0
NORWAY	1	0	0.0
ROMANIA	1	0	0.0
SWITZERLAND	1	0	0.0
TAJIKISTAN	1	0	0.0

11.3 Top Assignees

TOP ASSIGNEES	TOTAL
GOYO KENSETSU KK	23
MAEDA KOSEN KK	18
MITSUBISHI GROUP OF COMPANIES	18
KANKYO KOGAKU KK	17
NISHIMATSU CONSTRUCTION CO LTD	17
HITACHI	16
KOBE STEEL LTD	13
NIPPON SHOKUSEI KK	12
KAWASAKI HEAVY IND LTD	11
NIKKEN KOGAKU KK	11
KAJIMA CORP	10
SAMSUNG	10
KOREA ENVIRONMENTAL TECHNOLOGY CO LTD	9
KYOWA CONCRETE KOGYO KK	9
NIPPON TETRAPOD CO LTD	9
GAN EI CONCRETE KOGYO KK	8
SETOUCHI KANAAMI SHOKO KK	8
SHIMIZU CONSTR CO LTD	8
KABARDINO-BALKARSK AGRIC ACAD	7
KAM YG	7
NIPPON KOGYO KK	7
SUMITOMO GROUP	7
DOHWA CONSULTING ENGINEERS CO LTD	6
DOKURITSU GYOSEI HOJIN KOWAN KUKO GIJUTS	6
MITANI SEKISAN KK	6
NIPPON	6
NITTETSU KENZAI KOGYO KK	6
SHIBATA KOGYO KK	6
BRIDGESTONE CORP	5
CHIBA YOGYO KK	5
DAIHON KUMI KK	5
DELTALOK INC	5
DIATEX KK	5
ECOONE CORP	5
FUJITA KK	5
ISHIKAWAJIMA HARIMA HEAVY IND	5
KOIWA KANAAMI KK	5
OHBAYASHI GUMI KK	5
TANSHO KK	5
TOA DOBOKU KK	5

11.4 Top EU Academic Institutes

PROTECTION -EU ACADEMIC INSTITUTES	INVENTIONS
KABARDINO-BALKARSK AGRIC ACAD	7
UNIV KALIN TECH	3
NOVCH MELIORATION ACAD	2
SAMARA ARCHITECTURE-BUILDING ACAD	1
UNIV KUBAN	1
UNIV STAVROPOL STATE AGRIC	1

11.5 Top ROW Academic Institutes

PROTECTION -ROW ACADEMIC INSTITUTES	INVENTIONS
CHINESE ACADEMY OF SCIENCES	3
UNIV SHANDONG	2
UNIV WUHAN	2
CHONGQING QIANGUANG MACHINERY & ELECTRONICS A	1
GUILIN ENG COLLEGE	1
LIAONING ACAD FORESTRY SCI	1
TIANJIN ENVIRONMENTAL PROTECTION SCI INS	1
UNIV BEIJING	1
UNIV CHINA	1
UNIV CORDOBA NACIONAL	1
UNIV GUANGDONG OCEAN	1
UNIV GYEONGJU EDUCATION & IND COOP	1
UNIV HEHAI	1
UNIV KWANDONG IND FOUNDATION	1
UNIV MIYAZAKI	1
UNIV QINGHUA	1
UNIV SICHUAN	1
UNIV TOYOHASHI	1
UNIV YAMAGUCHI	1
UNIV ZHEJIANG SCI & TECHNOLOGY	1

11.6 Cites per Inventions Analysis

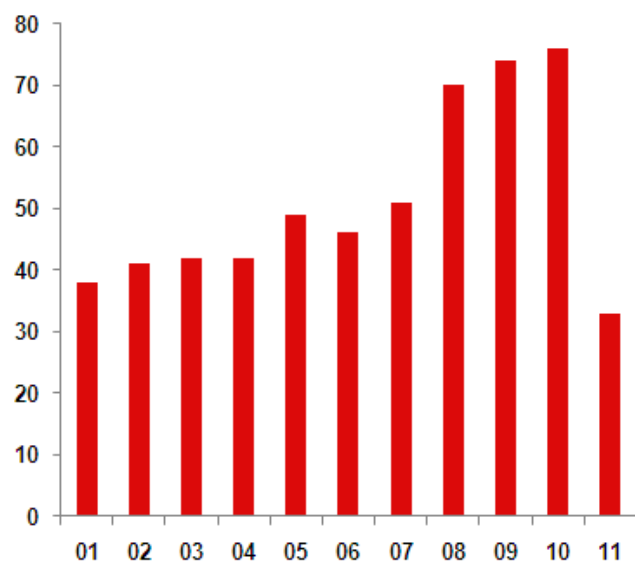
PROTECTION ACADEMIC INSTITUTES	INVENTIONS	TOTAL CITES	CITES PER PATENT
KABARDINO-BALKARSK AGRIC ACAD	7	0	0.0
CHINESE ACADEMY OF SCIENCES	3	0	0.0
UNIV KALIN TECH	3	0	0.0
NOVCH MELIORATION ACAD	2	0	0.0
UNIV SHANDONG	2	0	0.0
UNIV WUHAN	2	0	0.0
CHONGQING QIANGUANG MACHINERY & ELECTRO	1	1	1.0
GUILIN ENG COLLEGE	1	0	0.0
LIAONING ACAD FORESTRY SCI	1	0	0.0
SAMARA ARCHITECTURE-BUILDING ACAD	1	0	0.0
TIANJIN ENVIRONMENTAL PROTECTION SCI INS	1	0	0.0
UNIV BEIJING	1	0	0.0
UNIV CHINA	1	0	0.0
UNIV CORDOBA NACIONAL	1	0	0.0
UNIV GUANGDONG OCEAN	1	0	0.0
UNIV GYEONGJU EDUCATION & IND COOP	1	0	0.0
UNIV HEHAI	1	0	0.0
UNIV KUBAN	1	0	0.0
UNIV KWANDONG IND FOUNDATION	1	0	0.0
UNIV MIYAZAKI	1	0	0.0
UNIV QINGHUA	1	0	0.0
UNIV SICHUAN	1	0	0.0
UNIV STAVROPOL STATE AGRIC	1	0	0.0
UNIV TOYOHASHI	1	0	0.0
UNIV YAMAGUCHI	1	0	0.0
UNIV ZHEJIANG SCI & TECHNOLOGY	1	0	0.0

11.7 Inventor Analysis

PROTECTION -EU ACADEMIC INVENTORS	INVENTIONS
KURBANOV S O	6
VEDYASHKIN A S	3
KURBANOV K S	2
LAMERDONOV Z G	2
TUTAEV A A	2
VOLOSUKHIN V A	2
BALZANNIKOV M I	1
DUDAROVA F T	1
DYSHEKOV A KH	1
GALITSKOVA YU M	1
GETIEVA L A	1
KALININ A E	1
KASHARIN D V	1
KASHARINA T P	1
KUDRYAVT SEVA O V	1
KULAKOVA E N	1
SHABANOV V A	1
SHADUNTS K SH	1
SHAKHMURZOV M M	1
SHKURA V N	1
SOZAEV A A	1
TISHCHENKO A I	1
VINAKUROV A A	1
VINOKUROV A A	1

PROTECTION -ROW ACADEMIC INVENTORS	INVENTIONS
JIA T	2
LI H	2
LIU X	2
NI C	2
QU J	2
WANG S	2
XU W CN	2
ZHANG K	2
ZHANG R	2
ZHAO L	2
AMUCHASTEGUI J C	1
ASAHARA S	1
CHEN D	1
CHEN D CN	1
CHEN G	1
CHEN S	1
CHEN S CN	1
CHENG G	1
CUI Z	1
CUI Z CN	1
DENG J CN	1
FANG H	1
FENG X	1
FRANCISCA F M	1
GAN S	1
GAN S CN	1
GAO G	1
GAO G CN	1
GAO J	1
GAO X	1
GARCIA R C M	1
GARCIA RODRIGUEZ C M	1
GONG W	1
GU Y	1
HAN W	1
HATANO K	1
HOU J	1
HUA J	1
HUANG J	1
HUANG M	1
JANG C H	1
JEONG H H	1
JEONG S M	1
JIANG J	1
JING X	1
LI X	1
LI X CN	1

11.8 Publication Rate & Top Author Affiliation Country



COUNTRY	PAPERS	TOTAL CITES	CITES PER PAPER
USA	166	1050	6.3
PEOPLES R CHINA	99	532	5.4
SPAIN	43	242	5.6
GERMANY	36	229	6.4
AUSTRALIA	32	281	8.8
FRANCE	31	216	7.0
ENGLAND	29	275	9.5
BELGIUM	24	270	11.3
JAPAN	24	100	4.2
BRAZIL	23	133	5.8
CANADA	23	112	4.9
NETHERLANDS	20	399	20.0
ITALY	15	56	3.7
RUSSIA	14	68	4.9
SWITZERLAND	13	24	1.8
MEXICO	10	70	7.0
SCOTLAND	10	88	8.8
ROMANIA	9	24	2.7
GREECE	8	40	5.0
POLAND	8	24	3.0
TURKEY	8	36	4.5
ARGENTINA	7	26	3.7
ISRAEL	7	100	14.3
NEW ZEALAND	7	60	8.6
ETHIOPIA	6	75	12.5
FINLAND	6	53	8.8
HUNGARY	6	34	5.7
SOUTH KOREA	6	23	3.8
CZECH REPUBLIC	5	18	3.6
INDIA	5	30	6.0
IRAN	5	3	0.6
SWEDEN	5	33	6.6
AUSTRIA	4	16	4.0
CROATIA	4	1	0.3
INDONE SIA	4	38	9.5
LITHUANIA	4	24	6.0
PHILIPPINES	4	2	0.5
PORTUGAL	4	4	1.0
SOUTH AFRICA	4	60	15.0
TAIWAN	4	5	1.3
THAILAND	4	29	7.3
WALES	4	33	8.3

11.9 Top Affiliations

PROTECTION - EU AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
KATHOLIEKE UNIV LEUVEN	20	270	13.5
CSIC	18	101	5.6
INRA	9	39	4.3
CHINESE ACAD SCI	8	71	8.9
UNIV KIEL	8	38	4.8
IRD	6	63	10.5
UNIV AMSTERDAM	6	230	38.3
UNIV CORDOBA	5	33	6.6
WOLVERHAMPTON UNIV	5	18	3.6
MEKELLE UNIV	4	43	10.8
ROYAL MUSEUM CENT AFRICA	4	71	17.8
UNIV EXETER	4	51	12.8
UNIV VALENCIA	4	66	16.5
BEIJING NORMAL UNIV	3	8	2.7
CATHOLIC UNIV LOUVAIN	3	23	7.7
CRANFIELD UNIV	3	17	5.7
ICRAF	3	7	2.3
INST SOIL SCI & PLANT CULTIVAT	3	22	7.3
LITHUANIAN INST AGR	3	24	8.0
MANCHESTER METROPOLITAN UNIV	3	27	9.0
RES INST SOIL SCI & AGROCHEM	3	22	7.3
SCOTTISH CROP RES INST	3	25	8.3
UNIV AGR SCI & VET MED	3	3	1.0
UNIV BASEL	3	13	4.3
UNIV EDINBURGH	3	16	5.3
UNIV GHENT	3	3	1.0
UNIV HEL SINKI	3	44	14.7
UNIV UTRECHT	3	120	40.0
VRIJE UNIV AMSTERDAM	3	53	17.7
WAGENINGEN UNIV	3	37	12.3
ACAD SCI CZECH REPUBL	2	11	5.5
ALFRED WEGENER INST POLAR & MARINE RES	2	36	18.0
ARISTOTLE UNIV THESSALONIKI	2	0	0.0
CARES	2	2	1.0
CESKA ZEMEDLSKA UNIV PRAZE	2	1	0.5
CHARLES UNIV PRAGUE	2	1	0.5
CNR	2	17	8.5
CTR RECH ORLEANS	2	2	1.0
ETH ZENTRUM	2	4	2.0
FUND SCI RES FLANDERS	2	9	4.5
IFAPA CTR CAMINO PURCHIL	2	14	7.0
IFREMER	2	3	1.5
MOSCOW MV LOMONOSOV STATE UNIV	2	23	11.5
MTT AGRIFOOD RES FINLAND	2	14	7.0
NOTTINGHAM TRENT UNIV	2	15	7.5
RES INST SOIL SCI & AGR CHEM	2	16	8.0
SUMARSKI FAK SVEUCILISTA ZAGREBU	2	0	0.0
SWEDISH UNIV AGR SCI	2	18	9.0
SZENT ISTVAN UNIV	2	7	3.5

PROTECTION - ROW AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
CHINESE ACAD SCI	56	394	7.0
USDA ARS	29	342	11.8
BEIJING NORMAL UNIV	13	37	2.8
OHIO STATE UNIV	11	126	11.5
MINIST WATER RESOURCES	9	62	6.9
USDA	9	82	9.1
AGR & AGRI FOOD CANADA	8	24	3.0
KATHOLIEKE UNIV LEUVEN	8	173	21.6
MOSCOW MV LOMONOSOV STATE UNIV	7	37	5.3
COLORADO STATE UNIV	6	115	19.2
PURDUE UNIV	6	39	6.5
US GEOL SURVEY	6	57	9.5
CHINA AGR UNIV	5	19	3.8
IOWA STATE UNIV	5	25	5.0
IRD	5	40	8.0
LOUISIANA STATE UNIV	5	33	6.6
RUSSIAN ACAD SCI	5	31	6.2
TEXAS A&M UNIV	5	144	28.8
UNIV ARIZONA	5	144	28.8
UNIV GEORGIA	5	19	3.8
WASHINGTON STATE UNIV	5	30	6.0
CSIRO	4	160	40.0
GRIFFITH UNIV	4	41	10.3
MEKELLE UNIV	4	43	10.8
NW A&F UNIV	4	6	1.5
ROYAL MUSEUM CENT AFRICA	4	71	17.8
UNIV CALIF BERKELEY	4	109	27.3
UNIV COLORADO	4	164	41.0
UNIV KIEL	4	22	5.5
AGR RES ORG	3	65	21.7
CONSEJO NAACL INVEST CIENT & TECN	3	15	5.0
CSIRO	3	22	7.3
CSIRO LAND & WATER	3	14	4.7
E CHINA NORMAL UNIV	3	36	12.0
ICRAF	3	7	2.3
INST SOIL SCI & PLANT CULTIVAT	3	22	7.3
KANSAS STATE UNIV	3	38	12.7
LANZHOU UNIV	3	3	1.0
MINJIANG UNIV	3	9	3.0
NAGOYA UNIV	3	7	2.3
NANJING UNIV	3	58	19.3
NATL TAIWAN UNIV	3	5	1.7
PENN STATE UNIV	3	8	2.7
RES INST SOIL SCI & AGROCHEM	3	22	7.3
UNIV AGR SCI & VET MED	3	3	1.0
UNIV CALIF DAVIS	3	73	24.3
UNIV GHENT	3	3	1.0
UNIV MISSOURI	3	24	8.0
UNIV NAACL AUTONOMA MEXICO	3	30	10.0

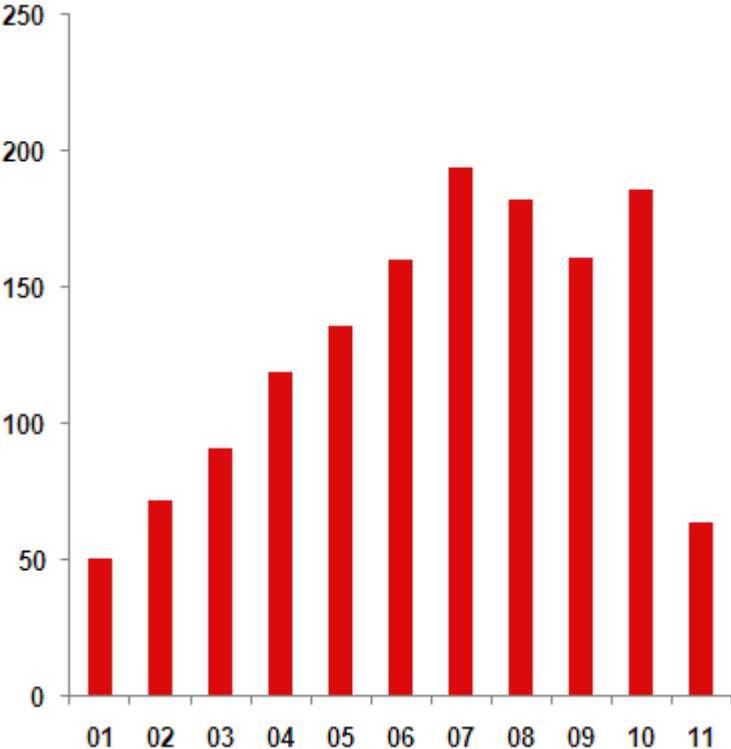
11.10 Top Authors

PROTECTION - EU INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
POESEN, J	17	214	12.6
GOVERS, G	8	162	20.3
HORN, R	6	44	7.3
DE BAETS, S	5	38	7.6
DECKERS, J	5	93	18.6
FLEIGE, H	5	26	5.2
FULLEN, M A	5	18	3.6
NYSSSEN, J	5	71	14.2
HAILE, M	4	71	17.8
KNAPEN, A	4	38	9.5
MOEYERSONS, J	4	71	17.8
RICHNER, W	4	15	3.8
STREIT, B	4	15	3.8
CZYZ, E A	3	22	7.3
DE LA ROSA, D	3	22	7.3
DIAZ-PEREIRA, E	3	22	7.3
HAO, F H	3	8	2.7
JANKAUSKAS, B	3	24	8.0
JANKAUSKIENE, G	3	24	8.0
OUYANG, W	3	8	2.7
SIMOTA, C	3	22	7.3
STAMP, P	3	14	4.7
VALENTIN, C	3	31	10.3
ALAKUKKU, L	2	18	9.0
ALBALADEJO, J	2	17	8.5
BAKSIC, D	2	1	0.5
BARTHES, B	2	25	12.5
BEUCHER, C	2	3	1.5
BLANCHART, E	2	9	4.5
BOOTH, C A	2	1	0.5
BORNETT, H L I	2	9	4.5
BREVIERE, E	2	3	1.5
CADISCH, G	2	2	1.0
CAMMERAAT, L H	2	29	14.5
CANNATA, F	2	2	1.0
CERDA, A	2	0	0.0
CHAPLOT, V	2	31	15.5
CHERVET, A	2	0	0.0
COSSA, D	2	3	1.5
DERCON, G	2	2	1.0
DEXTER, A	2	16	8.0
DOERR, S H	2	9	4.5
DUMITRU, E	2	19	9.5
EDGE, H L	2	9	4.5
EDWARDS, S A	2	9	4.5
FOX, D M	2	10	5.0
GARCIA, C	2	17	8.5
GYSELS, G	2	86	43.0
HAIGIS, J	2	28	14.0

PROTECTION - ROW INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
LAL, R	8	102	12.8
POESEN, J	8	173	21.6
SHI, X Z	6	9	1.5
DECKERS, J	5	93	18.6
LIANG, Y	5	9	1.8
NYSSSEN, J	5	71	14.2
YU, D S	5	9	1.8
GOVERS, G	4	90	22.5
HAILE, M	4	71	17.8
HORN, R	4	40	10.0
LI, X Y	4	32	8.0
LIU, L Y	4	32	8.0
MOEYERSONS, J	4	71	17.8
SHI, D M	4	9	2.3
ZHANG, B	4	52	13.0
BERTOL, I	3	14	4.7
BUSCHIAZZO, D E	3	18	6.0
CZYZ, E A	3	22	7.3
DE LA ROSA, D	3	22	7.3
DENDOOVEN, L	3	29	9.7
DIAZ-PEREIRA, E	3	22	7.3
DOBROVOL'SKAYA, N G	3	4	1.3
D'ODORICO, P	3	13	4.3
DOUGLAS, G B	3	7	2.3
FAN, J	3	23	7.7
FANG, H J	3	13	4.3
FLEIGE, H	3	22	7.3
HAO, F H	3	8	2.7
HEPPER, E N	3	18	6.0
HEVIA, G G	3	18	6.0
LEI, T	3	49	16.3
LI, D C	3	4	1.3
LITVIN, L F	3	4	1.3
MCCOOL, D K	3	17	5.7
MCDOWELL, R W	3	54	18.0
NEARING, M A	3	61	20.3
NORTON, L D	3	39	13.0
OUYANG, W	3	8	2.7
PAN, X Z	3	2	0.7
SHAINBERG, I	3	62	20.7
SHAO, M A	3	4	1.3
SIMOTA, C	3	22	7.3
SOJKA, R E	3	44	14.7
VALENTIN, C	3	31	10.3
WANG, H J	3	5	1.7
WANG, K	3	9	3.0
ZHANG, X P	3	17	5.7
ZHAO, H L	3	17	5.7
ZOBECK, T M	3	27	9.0

12 Traceability

12.1 Invention Velocity



12.2 Priority Country Analysis

PRIORITY COUNTRIES	INVENTIONS	TOTAL CITES	CITES PER INVENTION
UNITED STATES OF AMERICA	800	1603	2.0
PATENT CO-OPERATION TREATY	414	111	0.3
JAPAN	325	67	0.2
CHINA	153	4	0.0
GERMANY	125	58	0.5
EUROPEAN PATENT OFFICE	101	6	0.1
KOREA, REPUBLIC OF	80	1	0.0
FRANCE	58	6	0.1
UNITED KINGDOM	51	15	0.3
SPAIN	31	6	0.2
CANADA	29	14	0.5
AUSTRALIA	23	23	1.0
MEXICO	17	0	0.0
RUSSIAN FEDERATION	15	9	0.6
ISRAEL	7	3	0.4
ITALY	7	2	0.3
SWEDEN	7	5	0.7
BRAZIL	6	0	0.0
FINLAND	6	2	0.3
NETHERLANDS	5	0	0.0
SINGAPORE	5	0	0.0
SOUTH AFRICA	5	0	0.0
DENMARK	4	2	0.5
NORWAY	4	0	0.0
TAIWAN	4	0	0.0
BELGIUM	3	9	3.0
AUSTRIA	2	0	0.0
HONG KONG	2	0	0.0
IRELAND	2	1	0.5
NEW ZEALAND	2	1	0.5
SWITZERLAND	2	0	0.0
CROATIA	1	0	0.0
EURASIAN PATENT ORGANIZATION	1	0	0.0
GREECE	1	0	0.0
ROMANIA	1	0	0.0
SRI LANKA	1	0	0.0
UKRAINE	1	0	0.0

12.3 Top Assignees

TOP ASSIGNEES	TOTAL
MITSUBISHI GROUP OF COMPANIES	50
BOEING CO	18
TERAHOP NETWORKS INC	18
FURUNO DENKI KK	16
IBM	13
SAVI TECHNOLOGY INC	11
MIT SUI ENG & SHIPBUILDING CO	10
FUJITSU LTD	9
HITACHI	9
JAPAN RADIO CO LTD	9
NEC CORP	8
INNOVATIVE AMERICAN TECHNOLOGY INC	7
INTELLIGENT DEVICES INC	7
GENERAL ELECTRIC CO	6
HONEYWELL INC	6
QUALCOMM INC	6
SIEMENS	6
SYSTEM PLANNING CORP	6
UNIV SHANGHAI MARITIME	6
DEUT ZENT LUFT & RAUMFAHRT EV	5
INTEL CORP	5
LOCKHEED MARTIN CORP	5
THALES	5
TOKIMEC INC	5
TOSHIBA	5
UNITED PARCEL SERVICE AMERICA	5
UNITED SECURITY APPL ID INC	5
VISIBLE ASSETS INC	5
VOLKSWAGEN AG	5
WEATHERDOCK AG	5
3M INNOVATIVE PROPERTIES CO	4
ANGEL SECURE NETWORKS INC	4
DELPHI TECHNOLOGIES INC	4
EASTMAN KODAK CO	4
ISHIKAWAJIMA HARIMA HEAVY IND	4
KINSEKI LTD	4
KOKUDO KOTSUSHO KOKUDO GIJUTSU SEISAKU	4
PACECO CORP	4
RAYTHEON CO	4
SEIKO EPSON CORP	4
US SEC OF NAVY	4
UT BATTELLE LLC	4

12.4 Top EU Academic Institutes

TRACEABILITY -EU ACADEMIC INSTITUTES	INVENTIONS
FRAUNHOFER GES FOERDERUNG ANGEWAN	1
MAX PLANCK GES FOERDERUNG WISSENSC	1
ODESS NAT MARITIME ACAD	1
UNIV MARIISK	1
UNIV QINGHUA	1

12.5 Top ROW Academic Institutes

TRACEABILITY -ROW ACADEMIC INSTITUTES	INVENTIONS
UNIV SHANGHAI MARITIME	6
UNIV PUSAN NAT IND COOP FOUND	3
UNIV QINGHUA	3
UNIV DALIAN	2
UNIV JIMEI	2
UNIV SHANGHAI JIAOTONG	2
UNIV WUHAN SCI&TECHNOLOGY	2
DEUT ZENT LUFT & RAUMFAHRT EV	1
JIANGXI LANTIAN COLLEGE	1
UNIV BEIJING	1
UNIV CALIFORNIA	1
UNIV CENT FLORIDA	1
UNIV CHINA	1
UNIV COLUMBIA NEW YORK	1
UNIV DONG A RES FOUND IND ACAD CO	1
UNIV HUAZHONG SCI & TECHNOLOGY	1
UNIV KENTUCKY RES FOUND	1
UNIV KOREA	1
UNIV MAINE SYSTEM	1
UNIV NEW YORK STATE	1
UNIV NORTHWESTERN	1
UNIV SHANDONG	1
UNIV SHENZHEN	1
UNIV SINGAPORE NAT	1
UNIV SOUTHEAST	1
UNIV TEXAS	1
UNIV TONGMYONG IND ACADEMIC COOP FOUND	1
UNIV VIRGINIA PATENT FOUND	1
UNIV WASHINGTON	1
UNIV WUHAN	1
UNIVERSAL ZOSEN KK	1

12.6 Cites per Inventions Analysis

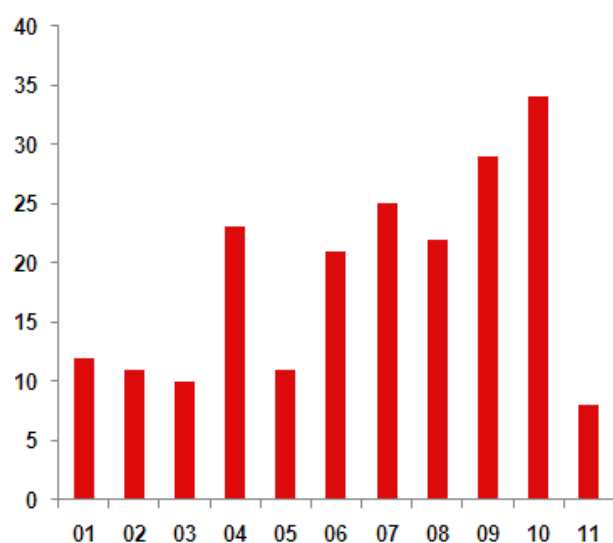
TRACEABILITY ACADEMIC INSTITUTES	INVENTIONS	TOTAL CITES	CITES PER PATENT
UNIV SHANGHAI MARITIME	6	0	0.0
UNIV PUSAN NAT IND COOP FOUND	3	0	0.0
UNIV QINGHUA	3	3	1.0
UNIV DALIAN	2	0	0.0
UNIV JIMEI	2	1	0.5
UNIV SHANGHAI JIAOTONG	2	0	0.0
UNIV WUHAN SCI&TECHNOLOGY	2	0	0.0
FRAUNHOFER GES FOERDERUNG ANGEWANDTEN	1	0	0.0
JIANGXI LANTIAN COLLEGE	1	0	0.0
MAX PLANCK GES FOERDERUNG WISSENSCHAFT	1	2	2.0
ODESS NAT MARITIME ACAD	1	0	0.0
UNIV BEIJING	1	0	0.0
UNIV CALIFORNIA	1	0	0.0
UNIV CENT FLORIDA	1	2	2.0
UNIV CHINA	1	0	0.0
UNIV COLUMBIA NEW YORK	1	2	2.0
UNIV DONG A RES FOUND IND ACAD CO	1	0	0.0
UNIV HUAZHONG SCI & TECHNOLOGY	1	0	0.0
UNIV KENTUCKY RES FOUND	1	0	0.0
UNIV KOREA	1	0	0.0
UNIV MAINE SYSTEM	1	0	0.0
UNIV MARIISK	1	0	0.0
UNIV MIAMI	1	0	0.0
UNIV NEW YORK STATE	1	0	0.0
UNIV NORTHWESTERN	1	1	1.0
UNIV SHANDONG	1	0	0.0
UNIV SHENZHEN	1	0	0.0
UNIV SINGAPORE NAT	1	0	0.0
UNIV SOUTHEAST	1	1	1.0
UNIV TEXAS	1	0	0.0
UNIV TONGMYONG IND ACADEMIC COOP FOUND	1	0	0.0
UNIV VIRGINIA PATENT FOUND	1	0	0.0
UNIV WASHINGTON	1	0	0.0
UNIV WUHAN	1	0	0.0
UNIVERSAL ZOSEN KK	1	0	0.0

12.7 Inventor Analysis

TRACEABILITY -EU ACADEMIC INVENTORS	INVENTIONS
BAUMGARTNER M	1
CHEN Z	1
GEHRMANN V	1
HAN Y	1
HOERCHER G	1
HU H	1
HUPP J	1
JIANG N	1
KANG K	1
KOSHEVYY V M	1
LIANG Z	1
MIAO Q	1
NEDELE M	1
PENG H	1
PFLAUM A	1
SCHLESIER C	1
SHISHKIN O V	1
SUN S	1
VVEDENSKII O G	1
WANG L	1
WU Y	1
ZAICHKO V S	1

TRACEABILITY -ROW ACADEMIC INVENTORS	INVENTIONS
HU Q	3
HE J CN	2
LI L	2
MI W CN	2
SHI C	2
SHI L CN	2
YANG C	2
ZHANG Y	2
ABDELRAHMAN M	1
ALEXANDER S M	1
ALFANO R R	1
ALRUBAIEE M	1
ATLAS L	1
BAEK Y J	1
BOREMAN G D	1
CAI C	1
CAO Y	1
CASSIDY E D	1
CHEN B CN	1
CHEN C CN	1
CHEN J	1
CHEN W	1
CHEN Z	1
CHO H T	1
CHRISTO S B	1
CHU X	1
CHU X CN	1
CRIST W L	1
DAGHER H J	1
DENG S	1
DEOK KIM J	1
DING F CN	1
FISHER R E	1
FU L CN	1
GAO D	1
GAYEN S K	1
GU W	1
GWAKGWANGHUN	1
HAHTO S K	1
HAILEY C	1
HAN Y	1
HE Y	1
HO JEON W	1
HOERCHER G	1
HU H	1
HU Z	1
HUANG J	1
HUANG W	1
HUANG X CN	1

12.8 Publication Rate & Top Author Affiliation Country



COUNTRY	PAPERS	TOTAL CITES	CITES PER PAPER
USA	95	1769	18.6
FRANCE	23	599	26.0
JAPAN	17	379	22.3
GERMANY	16	191	11.9
SWITZERLAND	14	552	39.4
ENGLAND	13	324	24.9
ITALY	13	100	7.7
PORTUGAL	11	454	41.3
SPAIN	11	201	18.3
CANADA	8	231	28.9
AUSTRALIA	7	186	26.6
PEOPLES R CHINA	7	38	5.4
BRAZIL	5	16	3.2
CHILE	5	93	18.6
FINLAND	5	5	1.0
TAIWAN	5	9	1.8
BELGIUM	4	38	9.5
GREECE	4	9	2.3
NETHERLANDS	4	13	3.3
NORWAY	4	9	2.3
AUSTRIA	3	28	9.3
ISRAEL	3	53	17.7
SWEDEN	3	12	4.0
ARGENTINA	2	5	2.5
INDIA	2	0	0.0
IRELAND	2	23	11.5
TURKEY	2	0	0.0
COLOMBIA	1	1	1.0
CROATIA	1	0	0.0
CZECH REPUBLIC	1	2	2.0
DENMARK	1	2	2.0
FRENCH GUIANA	1	4	4.0
HUNGARY	1	3	3.0
IRAN	1	2	2.0
LUXEMBOURG	1	0	0.0
MEXICO	1	1	1.0
NEW ZEALAND	1	2	2.0
NORTH IRELAND	1	2	2.0
POLAND	1	0	0.0
RUSSIA	1	0	0.0
SCOTLAND	1	2	2.0
SINGAPORE	1	1	1.0
SOUTH AFRICA	1	21	21.0
SOUTH KOREA	1	0	0.0
UKRAINE	1	38	38.0
URUGUAY	1	4	4.0

12.9 Top Affiliations

TRACEABILITY - EU AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
CNRS	7	288	41.1
OBSERV GENEVA	7	246	35.1
UNIV GENEVA	7	306	43.7
INST ASTROFIS CANARIAS	6	160	26.7
UNIV LISBON	6	379	63.2
EUROPEAN SO OBSERV	5	121	24.2
UNIV GRENOBLE 1	5	263	52.6
UNIV PARIS 06	5	356	71.2
HARVARD SMITHSONIAN CTR ASTROPHYS	4	77	19.3
OBSERV PARIS	4	44	11.0
UNIV PORTO	4	82	20.5
CEA	3	106	35.3
OBSERV HAUTE PROVENCE	3	94	31.3
UNIV CALIF BERKELEY	3	228	76.0
UNIV CALIF SAN DIEGO	3	125	41.7
UNIV CALIF SANTA CRUZ	3	254	84.7
UNIV GOTTINGEN	3	14	4.7
CARNEGIE INST WASHINGTON	2	218	109.0
CSIC	2	49	24.5
EUROPEAN SPACE AGCY	2	10	5.0
GERMAN AEROSP CTR	2	2	1.0
HEL SINKI UNIV TECHNOL	2	2	1.0
INST RECH DEV	2	5	2.5
LAB ASTROPHYS MARSEILLE	2	136	68.0
METEO FRANCE	2	107	53.5
NASA	2	21	10.5
PENN STATE UNIV	2	34	17.0
SAN FRANCISCO STATE UNIV	2	218	109.0
TEL AVIV UNIV	2	36	18.0
UNIV AIX MARSEILLE 1	2	110	55.0
UNIV AUTONOMA MADRID	2	10	5.0
UNIV CAMBRIDGE	2	42	21.0
UNIV HOSP SCHLESWIG HOLSTEIN	2	8	4.0
UNIV LA LAGUNA	2	35	17.5
UNIV LIEGE	2	36	18.0
UNIV PADUA	2	48	24.0
UNIV RENNES 1	2	61	30.5
VTT TECH RES CTR FINLAND	2	3	1.5
A CORROS EXPERTISE CORROS & CONSERVAT	1	2	2.0
AALTO UNIV	1	0	0.0
ABDUS SALAM INT CTR THEORET PHYS	1	2	2.0
ABO AKAD UNIV	1	3	3.0
ACAD ATHENS	1	0	0.0
ACTDOO	1	0	0.0
AIRMARAIX	1	105	105.0
AKAD POMORSKA	1	0	0.0
ALBANOVA UNIV CTR	1	10	10.0
ANGLO AUSTRALIAN OBSERV	1	107	107.0
ARMAGH OBSERV	1	2	2.0
AUSTRIAN ACAD SCI	1	24	24.0

TRACEABILITY - ROW AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
UNIV CALIF SANTA CRUZ	12	598	49.8
UNIV CALIF BERKELEY	11	667	60.6
CARNEGIE INST WASHINGTON	8	379	47.4
HARVARD SMITHSONIAN CTR ASTROPHYS	7	135	19.3
MICHIGAN STATE UNIV	7	78	11.1
NASA	7	320	45.7
UNIV WASHINGTON	7	96	13.7
EMORY UNIV	6	77	12.8
SAN FRANCISCO STATE UNIV	6	376	62.7
CALTECH	5	267	53.4
NOAA	5	124	24.8
TOKYO INST TECHNOL	5	240	48.0
EUROPEAN SO OBSERV	4	89	22.3
JOHNS HOPKINS UNIV	4	349	87.3
PENN STATE UNIV	4	43	10.8
UNIV COLORADO	4	68	17.0
UNIV MARYLAND	4	52	13.0
USN	4	40	10.0
CNRS	3	107	35.7
NATL ASTRON OBSERV	3	50	16.7
NATL TAIWAN OCEAN UNIV	3	9	3.0
OBSERV HAUTE PROVENCE	3	94	31.3
OBSERV PARIS	3	27	9.0
TOKAI UNIV	3	72	24.0
UNIV CALIF SAN DIEGO	3	125	41.7
UNIV GENEVA	3	17	5.7
UNIV GOTTINGEN	3	14	4.7
UNIV GRENOBLE 1	3	41	13.7
UNIV N CAROLINA	3	30	10.0
UNIV UTAH	3	34	11.3
YALE UNIV	3	13	4.3
AUSTRALIAN ANTARCTIC DIV	2	17	8.5
BAY AREA ENVIRONM RES INST	2	31	15.5
CHINA UNIV POLIT SCI & LAW	2	0	0.0
CORNELL UNIV	2	9	4.5
FUDAN UNIV	2	2	1.0
GRAD UNIV ADV STUDIES	2	64	32.0
INDIANA UNIV	2	1	0.5
KOBE UNIV	2	64	32.0
KYOTO UNIV	2	14	7.0
LAB ASTROPHYS MARSEILLE	2	136	68.0
LAWRENCE LIVERMORE NATL LAB	2	281	140.5
MISSOURI UNIV SCI & TECHNOL	2	3	1.5
MIT	2	13	6.5
MITSUBISHI ELECTR CORP	2	5	2.5
NATL CTR ATMOSPHER RES	2	48	24.0
NATL INST NAT SCI	2	64	32.0
NATL KAOHSIUNG MARINE UNIV	2	0	0.0
OBSERV GENEVA	2	89	44.5
TEL AVIV UNIV	2	36	18.0

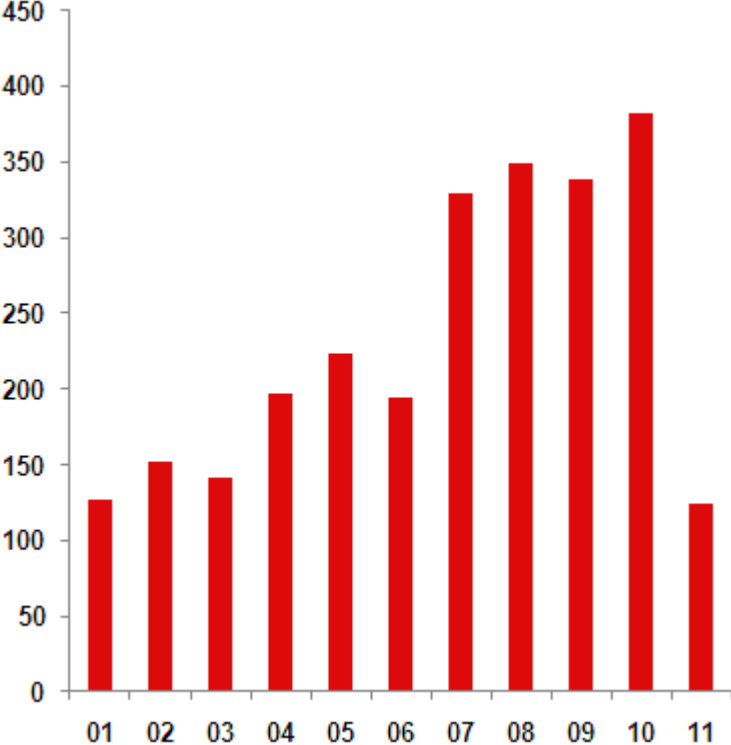
12.10 Top Authors

TRACEABILITY - EU INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
MAYOR, M	12	537	44.8
SANTOS, N C	10	304	30.4
UDRY, S	8	319	39.9
ISRAELIAN, G	6	160	26.7
BOUCHY, F	5	316	63.2
QUELOZ, D	5	316	63.2
LOVIS, C	4	291	72.8
PEPE, F	4	227	56.8
ECUVILLON, A	3	104	34.7
EHRENREICH, D	3	41	13.7
NAEF, D	3	29	9.7
APPS, K	2	121	60.5
BERGLUND, R	2	3	1.5
BERTAUX, J L	2	222	111.0
BONFILS, X	2	222	111.0
BUTLER, R P	2	218	109.0
CORBANE, C	2	5	2.5
DELEUIL, M	2	95	47.5
DELFOSSÉ, X	2	222	111.0
DES ETANGS, A L	2	76	38.0
ERIKSEN, T	2	6	3.0
FISCHER, D A	2	121	60.5
FORVILLE, T	2	222	111.0
HEBRARD, G	2	76	38.0
HERNANDEZ, J I G	2	3	1.5
HIORT, O	2	8	4.0
HOLTERHUS, P M	2	8	4.0
KNAUTH, M	2	14	7.0
KOTOVIRTA, V	2	3	1.5
KUJALA, P	2	2	1.0
MARCY, G W	2	121	60.5
MAZEH, T	2	36	18.0
MELAND, B J	2	6	3.0
MOUTOU, C	2	29	14.5
OEL SCHLAGER, H H A	2	14	7.0
PERRIER, C	2	222	111.0
PETIT, M	2	5	2.5
RIDGWAY, S H	2	14	7.0
THEBAULT, P	2	27	13.5
WERNER, R	2	8	4.0
WRIGHT, J T	2	117	58.5
AARSAETHER, K G	1	3	3.0
AARSETH, S J	1	36	36.0
ABSIL, O	1	12	12.0
ADAMO, B	1	0	0.0
ALAIN, M	1	0	0.0
ALVES, J	1	12	12.0
ANAGNOSTIS, P	1	0	0.0
ANDRE, M	1	71	71.0

TRACEABILITY - ROW INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
FISCHER, D A	9	276	30.7
BUTLER, R P	8	362	45.3
MARCY, G W	8	268	33.5
VOGT, S S	7	255	36.4
JOHNSON, J I	6	77	12.8
MARINO, L	6	77	12.8
IDA, S	4	240	60.0
IZUMIURA, H	4	78	19.5
JOHNSON, J A	4	154	38.5
LAUGHLIN, G	4	34	8.5
MASUDA, S	4	78	19.5
MAYOR, M	4	94	23.5
UDRY, S	4	94	23.5
WRIGHT, J T	4	258	64.5
YOSHIDA, M	4	78	19.5
ANDO, H	3	70	23.3
APPS, K	3	123	41.0
BOUCHY, F	3	94	31.3
EHRENREICH, D	3	41	13.7
KAMBE, E	3	70	23.3
LIN, D N C	3	212	70.7
MCLELLAN, W A	3	30	10.0
MURPHY, T L	3	57	19.0
QUELOZ, D	3	94	31.3
RIDGWAY, S H	3	34	11.3
SANTOS, N C	3	70	23.3
SATO, B	3	70	23.3
TAKEDA, Y	3	70	23.3
AMMONS, S M	2	17	8.5
BABIAC, A	2	11	5.5
BOWLER, B P	2	13	6.5
CHANG, K Y	2	17	8.5
DELEUIL, M	2	95	47.5
DES ETANGS, A L	2	76	38.0
ERROLL, M	2	11	5.5
FISCHER, D	2	116	58.0
FORD, E B	2	79	39.5
GRAHAM, J R	2	281	140.5
HEBRARD, G	2	76	38.0
HENRY, G W	2	13	6.5
HOWARD, A W	2	13	6.5
INABA, T	2	5	2.5
ISAACSON, H	2	13	6.5
ITOH, Y	2	64	32.0
JONES, H R A	2	109	54.5
KNAUTH, M	2	14	7.0
KOKUBO, E	2	64	32.0
KOYANO, H	2	14	7.0
MAEHARA, H	2	14	7.0

13 Environmental Monitoring

13.1 Invention Velocity



13.2 Priority Country Analysis

PRIORITY COUNTRIES	INVENTIONS	TOTAL CITES	CITES PER INVENTION
UNITED STATES OF AMERICA	1241	2191	1.8
JAPAN	669	58	0.1
PATENT CO-OPERATION TREA	478	168	0.4
CHINA	331	3	0.0
KOREA, REPUBLIC OF	237	23	0.1
GERMANY	163	43	0.3
EUROPEAN PATENT OFFICE	136	162	1.2
UNITED KINGDOM	104	49	0.5
FRANCE	103	43	0.4
RUSSIAN FEDERATION	77	2	0.0
AUSTRALIA	47	21	0.4
CANADA	32	15	0.5
SPAIN	21	1	0.0
NORWAY	17	8	0.5
BRAZIL	12	0	0.0
TAIWAN	11	5	0.5
SWEDEN	9	1	0.1
ITALY	8	1	0.1
ISRAEL	6	1	0.2
DENMARK	6	11	1.8
NETHERLANDS	6	0	0.0
AUSTRIA	5	0	0.0
SOUTH AFRICA	5	0	0.0
NEW ZEALAND	4	0	0.0
MEXICO	4	0	0.0
FINLAND	4	14	3.5
INDIA	3	0	0.0
ICELAND	3	2	0.7
BELGIUM	3	9	3.0
SINGAPORE	3	0	0.0
GREECE	2	1	0.5
REPUBLIC OF MOLDOVA	2	0	0.0
IRELAND	2	0	0.0
UKRAINE	1	0	0.0
SLOVENIA	1	0	0.0
AFRICAN INTELLECTUAL PROP	1	0	0.0
CZECH REPUBLIC	1	0	0.0
TURKEY	1	0	0.0
CHILE	1	1	1.0
UNITED ARAB EMIRATES	1	0	0.0
ROMANIA	1	0	0.0
ARMENIA	1	0	0.0
SWITZERLAND	1	0	0.0
POLAND	1	0	0.0

13.3 Top Assignees

TOP ASSIGNEES	TOTAL
MITSUBISHI GROUP OF COMPANIES	87
BOEING CO	84
TOYOTA JIDOSHA KK	38
JAPAN RADIO CO LTD	36
US SEC OF NAVY	25
LOCKHEED MARTIN CORP	24
HITACHI	20
THALES	20
HONEYWELL INC	19
SCHLUMBERGER TECHNOLOGY CORP	19
NEC CORP	18
TERAHOP NETWORKS INC	18
FUJITSU LTD	16
ELECTRONICS & TELECOM RES INST	15
FURUNO DENKI KK	15
GENERAL ELECTRIC CO	15
KOREA OCEAN RES&DEV INST	15
CHINESE ACADEMY OF SCIENCES	14
SONY CORP	14
GARMIN CORP	13
GENERAL MOTORS CORP	13
SAMSUNG	12
DIRECTV GROUP INC	11
PANASONIC CORP	11
QUALCOMM INC	11
GECO AS	10
INTELLIGENT DEVICES INC	10
RAYTHEON CO	10
TRIMBLE NAVIGATION LTD	10
ALCATEL	9
SIEMENS	9
TOSHIBA	9
UNIV DALIAN	9
AS RUSSIA CONTROL PROBLEMS INST	8
CATERPILLAR INC	8
DOKURITSU GYOSEI HOJIN TSUSHIN SOGO KENK	8
HARRIS CORP	8
HYUNDAI	8
IBM	8
KODEN SEISAKUSHO KK	8
LG CORP	8
NIPPONDENSO CO LTD	8

13.4 Top EU Academic Institutes

ENVIRONMENT -EU ACADEMIC INSTITUES	INVENTIONS
CNRS CENT NAT RECH SCI	2
ECOLE NAT ING BREST	2
FRAUNHOFER GES FOERDERUNG ANGEWAN	2
MOZHAIKII MILITARY COSMIC ACAD	2
UNIV RENNES	2
UNIV SOUTHAMPTON	2
UNIV VIGO	2
CENT NAT ETUD SPATIALES	1
GET GRP ECOLES TELECOM INT INST NAT TI	1
KUZNETSOV MILITARY NAVAL ACAD	1
TYUMENSK AGRIC ACAD	1
UK SEC FOR DEFENCE	1
UNIV ABERDEEN	1
UNIV CATALUNYA POLITECNICA	1
UNIV DAYTON	1
UNIV EDINBURGH	1
UNIV EXETER	1
UNIV JAGIELLONSKI	1
UNIV MILAN STUDI	1
UNIV MURMANSK TECH	1
UNIV STRATHCLYDE	1

13.5 Top ROW Academic Institutes

ENVIRONMENT -ROW ACADEMIC INSTITUTES	INVENTIONS
CHINESE ACADEMY OF SCIENCES	14
UNIV DALIAN	9
UNIV NANJING	7
UNIV CHINA	6
UNIV SHANGHAI MARITIME	5
SHANDONG SCI ACAD	4
UNIV PUSAN NAT IND COOP FOUND	4
UNIV SEOUL NAT IND FOUND	4
UNIV TOKYO	4
UNIV BEIJING	3
UNIV COLORADO	3
UNIV SOUTHEAST	3
UNIV TOKAI	3
UNIV TONGMYONG IND ACADEMIC COOP FOUND	3
UNIVERSAL ZOSEN KK	3
CHINA SURVEYING & MAPPING RES ACAD	2
DONGHAI AQUATIC PROD INST CHINA ACAD AQU	2
UNIV CHIBA	2
UNIV CHINESE MARINE	2
UNIV DELAWARE	2
UNIV GUILIN ELECTRONIC TECHNOLOGY	2
UNIV HANGZHOU	2
UNIV INCHEON IND ACAD COOP FOUND	2
UNIV JOHNS HOPKINS	2
UNIV MIAMI	2
UNIV NORTHWESTERN POLYTECHNICAL	2
UNIV PUKYONG NAT	2
UNIV YONSEI IND ACADEMIC COOP FOUND	2
UNIV ZHEJIANG	2
ANALYTICAL INSTR SYSTEMS INC	1
APPLIED RES CENT SPACE SCI CAS	1
CHANGJIANG SEA ROUTE LAYOUT & DES ACAD	1
CHINA AQUATIC SCI RES ACAD	1
CSIC NO 710 RES&DEV INST	1
DARTMOUTH COLLEGE	1
INHA FOUND	1
JAPAN SCI & TECHNOLOGY AGENCY	1
KUNMING COLLEGE	1
SHANGHAI OCEAN UNIVERSITY	1
UK SEC FOR DEFENCE	1
UNIV ARIZONA	1
UNIV ARKANSAS	1
UNIV CALIFORNIA	1

13.6 Cites per Inventions Analysis

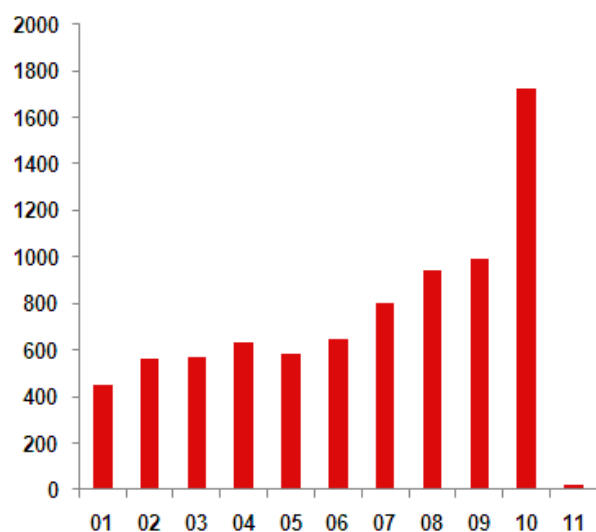
ENVIRONMENT ACADEMIC INSTITUTES	INVENTIONS	TOTAL CITES	CITES PER PATENT
CHINESE ACADEMY OF SCIENCES	14	0	0.0
UNIV DALIAN	9	0	0.0
UNIV NANJING	7	0	0.0
UNIV CHINA	6	0	0.0
UNIV COLORADO	5	5	1.0
UNIV SHANGHAI MARITIME	5	0	0.0
UNIV TOKYO	5	0	0.0
UNIV RENNES	4	2	0.5
UNIV SEOUL NAT IND FOUND	4	1	0.3
SHANDONG SCI ACAD	4	0	0.0
UNIV SOUTHAMPTON	4	0	0.0
UNIV PUSAN NAT IND COOP FOUND	4	0	0.0
CNRS CENT NAT RECH SCI	4	0	0.0
UNIV MIAMI	3	12	4.0
UK SEC FOR DEFENCE	3	6	2.0
ECOLE NAT ING BREST	3	5	1.7
UNIV TOKAI	3	5	1.7
UNIV CHIBA	3	2	0.7
FRAUNHOFER GES FOERDERUNG ANGEWANDTEN	3	0	0.0
UNIV STRATHCLYDE	3	0	0.0
UNIV EDINBURGH	3	0	0.0
JAPAN SCI & TECHNOLOGY AGENCY	3	0	0.0
UNIV SOUTHEAST	3	0	0.0
UNIV NIPPON	3	0	0.0
UNIV BEIJING	3	0	0.0
UNIV TOKYO NAT CORP AGRIC & TECHNOLOGY	3	0	0.0
UNIV TONGMYONG IND ACADEMIC COOP FOUND	3	0	0.0
UNIV DAYTON	3	0	0.0
UNIVERSAL ZOSEN KK	3	0	0.0
UNIV DONGGUK IND ACADEMIC COOP FOUND	2	10	5.0
UNIV CALIFORNIA	2	10	5.0
UNIV JOHNS HOPKINS	2	4	2.0
UNIV CATOLICA SANTISIMA CONCEPCION	2	2	1.0
UNIV NORTHWESTERN	2	2	1.0
UNIV INCHEON IND ACAD COOP FOUND	2	1	0.5
UNIV YONSEI IND ACADEMIC COOP FOUND	2	1	0.5
UNIV ZHEJIANG	2	0	0.0
UNIV TAIWAN NAT	2	0	0.0
CENT NAT ETUD SPATIALES	2	0	0.0
UNIVERSAL RESOURCE INC	2	0	0.0
UNIV EXETER	2	0	0.0
MOZHAIKII MILITARY COSMIC ACAD	2	0	0.0
ANALYTICAL INSTR SYSTEMS INC	2	0	0.0
UNIV DELAWARE	2	0	0.0
UNIV VIRGINIA PATENT FOUND	2	0	0.0
UNIV MILAN STUDI	2	0	0.0
UNIV CHINESE MARINE	2	0	0.0

13.7 Inventor Analysis

ENVIRONMENT -EU ACADEMIC INVENTORS	INVENTIONS
CHARLES C	2
DIKAREV V I	2
DORONIN A P	2
DROZHZHIN V V	2
JARDAK N	2
JOURDAN T	2
JUNAK A I	2
PARENTHOEN M	2
SAMAMA N	2
SVINARCHUK A A	2
TISSEAU J	2
ADAM M	1
ANDEUREI K	1
BIRKETT M A	1
BOSCH LLUIS X	1
CAMPS CARMONA A J	1
CAVE K R	1
CHALLENGER P G	1
CONFALONIERI R	1
COURVOISIER F	1
CUINAS GOMEZ I	1
DONNELLY N	1
DUDLEY J M	1
FLYNN B W	1
FOERSTER F	1
FUHR G	1
GARCIA SANCHEZ M	1
GARCIA VALLADARES J C	1
GARREAU M	1
HIRST E	1
JEANNOT M	1
JENON N	1
JEOJI K	1
JUDIN YU I	1
KASPARIAN J	1
KASPARIAN J FR	1
KAYE P H	1
KOSULNIKOV A R	1
KUBISZ J	1
KUBISZ J PL	1
KULAK A	1
KULAK A PL	1
LACOURT P	1
LACOURT P A	1
LETESTU Y	1
MAIKEUL O	1
MARCHAN HERNANDEZ J F	1
MARIANI L	1
MATVEEV V V	1

ENVIRONMENT -ROW ACADEMIC INVENTORS	INVENTIONS
ZHANG Y	11
CHEN Y	5
GONG D	5
WANG Z	5
ZHANG J	5
JIANG J	4
LI S	4
LI Y	4
XU Y	4
HUANG J	3
LI D	3
LI M	3
LI W	3
LI X	3
LIU J	3
MORIKAWA M	3
SUN Y	3
WANG Q CN	3
WU X	3
XU K	3
XU X CN	3
YANG C CN	3
ZHANG L	3
ZHANG X	3
ZHANG Z	3
ZHANG Z CN	3
AN K	2
CHEN J	2
CHEN L	2
CHOI B	2
CIPRIANO J	2
DONG HOON L	2
DU J	2
DUNCAN D D	2
FRANK J	2
GU W	2
HAO J	2
HAO W	2
HU Q	2
HUANG H	2
HUI L	2
ITO K	2
JO Y	2
KANG Y Q	2
KATO T	2
KIM D	2
KIM J	2
KIM J H	2
KRILL J A	2

13.8 Publication Rate & Top Author Affiliation Country



COUNTRY	PAPERS	TOTAL CITES	CITES PER PAPER
USA	2725	8114	3.0
FRANCE	720	2973	4.1
ENGLAND	665	3888	5.8
PEOPLES R CHINA	499	642	1.3
GERMANY	460	1928	4.2
JAPAN	460	1585	3.4
ITALY	418	1408	3.4
CANADA	402	1204	3.0
AUSTRALIA	334	1701	5.1
INDIA	320	316	1.0
SPAIN	255	1137	4.5
RUSSIA	236	496	2.1
NETHERLANDS	148	740	5.0
NORWAY	134	621	4.6
SOUTH KOREA	126	291	2.3
SCOTLAND	124	918	7.4
TAIWAN	112	400	3.6
DENMARK	111	521	4.7
BRAZIL	100	175	1.8
NEW ZEALAND	91	539	5.9
SWEDEN	89	400	4.5
GREECE	88	584	6.6
TURKEY	86	192	2.2
PORTUGAL	78	342	4.4
BELGIUM	70	389	5.6
POLAND	65	421	6.5
CHILE	64	502	7.8
SOUTH AFRICA	64	442	6.9
WALES	64	751	11.7
FINLAND	57	251	4.4
MEXICO	51	207	4.1
SWITZERLAND	42	299	7.1
ARGENTINA	38	367	9.7
ISRAEL	38	393	10.3
NEW CALEDONIA	36	67	1.9
EGYPT	27	84	3.1
IRELAND	26	69	2.7
UKRAINE	26	119	4.6
BULGARIA	25	58	2.3
THAILAND	24	63	2.6
INDONESIA	23	203	8.8
CROATIA	22	80	3.6
ESTONIA	22	76	3.5

13.9 Top Affiliations

ENVIRONMENT - EU AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
CNRS	107	908	8.5
UNIV PARIS 06	107	734	6.9
IFREMER	101	521	5.2
CNR	73	524	7.2
CSIC	69	707	10.2
ALFRED WEGENER INST POLAR & MARINE RES	68	746	11.0
BRITISH ANTARCTIC SURVEY	68	745	11.0
NOAA	64	619	9.7
PLYMOUTH MARINE LAB	64	568	8.9
NASA	60	849	14.2
UNIV HAMBURG	60	204	3.4
UNIV PLYMOUTH	48	428	8.9
NATL OCEANOGRAPHY CENTER	41	98	2.4
UNIV BREMEN	41	380	9.3
SOUTHAMPTON OCEANOGRAPHY CENTER	39	1682	43.1
UNIV KIEL	37	435	11.8
WOODS HOLE OCEANOGRAPHY INST	37	631	17.1
UNIV E ANGLIA	36	167	4.6
POLISH ACAD SCI	35	368	10.5
UNIV MIAMI	35	474	13.5
UNIV SOUTHAMPTON	35	187	5.3
CALTECH	34	359	10.6
RUSSIAN ACAD SCI	34	151	4.4
UCL	34	470	13.8
COMMISS EUROPEAN COMMUNITIES	33	452	13.7
MET OFF	31	1332	43.0
UNIV WASHINGTON	31	283	9.1
UNIV CALIF SAN DIEGO	29	331	11.4
ENEA	27	241	8.9
UNIV OSLO	25	258	10.3
USN	25	160	6.4
GKSS FORSCHUNGSZENTRUM GEESTHACHT GM	24	153	6.4
IRD	24	222	9.3
MAX PLANCK INST METEOROL	24	303	12.6
PROUDMAN OCEANOGRAPHY LAB	24	109	4.5
STOCKHOLM UNIV	24	93	3.9
UNIV LIEGE	24	206	8.6
VRIJE UNIV AMSTERDAM	24	48	2.0
IST NAZL GEOFIS & VULCANOL	23	171	7.4
UNIV CAPE TOWN	22	289	13.1
UNIV PISA	22	300	13.6
UNIV ST ANDREWS	22	239	10.9
UNIV VIGO	22	101	4.6
DALHOUSIE UNIV	21	239	11.4
NATL CTR ATMOSPHER RES	21	261	12.4
NORWEGIAN POLAR RES INST	21	175	8.3
UNIV BARCELONA	21	157	7.5
CLS	20	250	12.5
CNES	20	263	13.2
UNIV ABERDEEN	20	167	8.4
UNIV ATHENS	20	178	8.9

ENVIRONMENT - ROW AFFILIATIONS	PAPERS	TOTAL CITES	CITES PER PAPER
NOAA	306	1634	5.3
NASA	292	2942	10.1
CHINESE ACAD SCI	204	310	1.5
CALTECH	182	1409	7.7
UNIV WASHINGTON	172	1380	8.0
USN	152	835	5.5
RUSSIAN ACAD SCI	149	374	2.5
UNIV CALIF SAN DIEGO	132	1502	11.4
WOODS HOLE OCEANOGRAPHY INST	124	2091	16.9
UNIV MIAMI	117	948	8.1
UNIV COLORADO	96	798	8.3
OREGON STATE UNIV	94	889	9.5
HOKKAIDO UNIV	85	507	6.0
UNIV MARYLAND	85	1088	12.8
NATL INST OCEANOGRAPHY	77	173	2.2
OCEAN UNIV CHINA	76	119	1.6
UNIV HAWAII MANOA	75	715	9.5
US GEOL SURVEY	74	330	4.5
UNIV HAWAII	71	891	12.5
UNIV TOKYO	71	464	6.5
COLUMBIA UNIV	65	1680	25.8
FISHERIES & OCEANS CANADA	65	362	5.6
UNIV S FLORIDA	64	506	7.9
DALHOUSIE UNIV	63	635	10.1
NATL CTR ATMOSPHER RES	62	540	8.7
FLORIDA STATE UNIV	61	427	7.0
UNIV TASMANIA	58	550	9.5
AUSTRALIAN ANTARCTIC DIV	56	380	6.8
STATE OCEAN ADM	56	104	1.9
JAPAN AGCY MARINE EARTH SCI & TECHN	54	208	3.9
MIT	54	801	14.8
TOHOKU UNIV	51	411	8.1
UNIV CALIF SANTA BARBARA	50	623	12.5
UNIV PARIS 06	49	240	4.9
TEXAS A&M UNIV	48	422	8.8
UNIV RHODE ISL	46	431	9.4
UNIV ALASKA FAIRBANKS	43	329	7.7
UNIV CAPE TOWN	42	383	9.1
CNRS	41	421	10.3
UNIV BRITISH COLUMBIA	41	168	4.1
UNIV CALIF SANTA CRUZ	41	443	10.8
UNIV MAINE	39	448	11.5
OHIO STATE UNIV	38	335	8.8
UNIV CALIF LOS ANGELES	38	426	11.2
NATL TAIWAN OCEAN UNIV	37	209	5.6
RUTGERS STATE UNIV	37	328	8.9
UNIV WISCONSIN	37	557	15.1
NATL TAIWAN UNIV	36	258	7.2
COLORADO STATE UNIV	35	381	10.9
UNIV NEW HAMPSHIRE	35	223	6.4
STANFORD UNIV	34	640	18.8

13.10 Top Authors

ENVIRONMENT - EU INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
HAYS, G C	31	446	14.4
CHAPRON, B	22	132	6.0
MELIN, F	21	139	6.6
CAZENAVE, A	20	361	18.1
ZIBORDI, G	19	134	7.1
CAMPS, A	18	113	6.3
FONT, J	18	133	7.4
ANTOINE, D	17	355	20.9
SATHYENDRANATH, S	17	156	9.2
BRASSEUR, P	16	100	6.3
GODLEY, B J	16	228	14.3
HUGHES, C W	15	64	4.3
LEHNER, S	15	83	5.5
VERRON, J	15	114	7.6
BRODERICK, A C	14	228	16.3
LUSCHI, P	14	264	18.9
MERCHANT, C J	13	97	7.5
ALPERS, W	12	22	1.8
BOUTIN, J	12	122	10.2
BRANKART, J M	12	72	6.0
FIORANI, L	12	45	3.8
GENTILI, B	12	189	15.8
MOULIN, C	12	146	12.2
PALUCCI, A	12	45	3.8
SMYTH, T J	12	140	11.7
SROKOSZ, M A	12	67	5.6
AIKEN, J	11	154	14.0
DUARTE, C M	11	50	4.5
HARDMAN-MOUNTFORD, N J	11	140	12.7
LOISEL, H	11	102	9.3
MOREL, A	11	168	15.3
PINARDI, N	11	216	19.6
PLATT, T	11	143	13.0
SANTOLERI, R	11	99	9.0
STANEV, E V	11	51	4.6
TANRE, D	11	442	40.2
WEIMERSKIRCH, H	11	201	18.3
BERTHON, J F	10	94	9.4
BOPP, L	10	235	23.5
D'ORTENZIO, F	10	135	13.5
FANTONI, R	10	44	4.4
FROUIN, R	10	67	6.7
HEYGSTER, G	10	179	17.9
OHDE, T	10	40	4.0
SIEGEL, H	10	47	4.7
STAMMER, D	10	82	8.2
TINTORE, J	10	22	2.2
VANDEMARK, D	10	55	5.5
ALVAIN, S	9	61	6.8
ALVAREZ, A	9	24	2.7

ENVIRONMENT - ROW INVENTORS	PAPERS	TOTAL CITES	CITES PER PAPER
KAWAMURA, H	45	245	5.4
XIE, S P	29	661	22.8
HU, C M	25	280	11.2
LIU, W T	24	397	16.5
MULLER-KARGER, F E	24	207	8.6
WANG, D X	23	122	5.3
KARA, A B	22	177	8.0
WALLCRAFT, A J	22	184	8.4
MCCLAIN, C R	21	398	19.0
HURLBURT, H E	20	202	10.1
COMISO, J C	19	643	33.8
MARKUS, T	19	173	9.1
SATHYENDRANATH, S	19	212	11.2
CHAMBERS, D P	18	237	13.2
ANDREFOUET, S	17	98	5.8
CHAUHAN, P	17	62	3.6
HAYS, G C	17	257	15.1
LUTJEHARMS, J R E	17	97	5.7
MCPHADEN, M J	17	126	7.4
NAYAK, S	17	64	3.8
STRAMSKI, D	17	327	19.2
AGARWAL, V K	16	34	2.1
FRANZ, B A	16	98	6.1
LI, X F	16	48	3.0
LIN, I I	16	113	7.1
SIEGEL, D A	16	293	18.3
KWOK, R	15	186	12.4
NAYAK, S R	15	25	1.7
PLATT, T	15	203	13.5
PONTE, R M	15	94	6.3
SARKAR, A	15	22	1.5
WANG, M H	15	169	11.3
CAVALIERI, D J	14	395	28.2
MINNETT, P J	14	184	13.1
PARAMESWARAN, K	14	49	3.5
SASAKI, H	14	97	6.9
WILLIAMS, G D	14	45	3.2
ZHANG, J L	14	162	11.6
BARBER, D G	13	70	5.4
BARRON, C N	13	65	5.0
BASU, S	13	13	1.0
DONEY, S C	13	321	24.7
DOUGLAS, D C	13	139	10.7
KAUFMAN, Y J	13	561	43.2
KOSTIANOY, A G	13	127	9.8
METZGER, E J	13	110	8.5
RAJEEV, K	13	49	3.8
SHARMA, R	13	35	2.7
SHI, P	13	36	2.8
WERDELL, P J	13	126	9.7



Sound analysis, inspiring ideas