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Affiliation(s) : 1 : Ifremer
Date : 2018-02-26

# Bibliometric analyses of 2014-2016 publications from Argo floats

# Contents

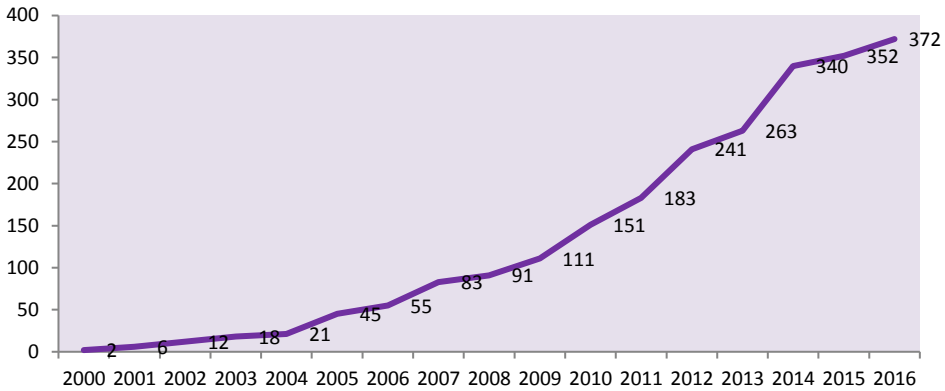


# 1. Introduction

This document proposes a set of bibliometric graphics about the 1064 articles published between 2014 and 2016 that use the data from the ARGO buoys.

The list of articles comes from Megan Scanderbeg survey. Only the articles that have a DOI and that are indexed in the Web Of Science (WOS) database have been taken into account. The graphs are obtained by Orbit Intellixir Software | IP Business Intelligence

# 2. Evolution of the number of articles (2000-2016)



# 3. Concepts (2014-2016 articles)

## 3.1. Main concepts (terms from title and abstract)

| | Articles |
|---|---|
| Ocean | 834 |
| Sea | 618 |
| Model | 503 |
| Temperature | 466 |
| Variability | 418 |
| Salinity | 404 |
| Sea surface | 366 |
| Argo | 350 |
| Depth | 346 |
| Satellite | 344 |
| Current | 318 |
| Circulation | 312 |
| Global | 282 |
| Increase | 251 |
| Seasonal | 246 |
| Wind | 239 |
| Measurement | 235 |
| Heat | 234 |
| Float | 232 |
| Eddy | 230 |
| Transport | 229 |
| Mix layer | 224 |
| Anomaly | 215 |
| Surface temperature | 215 |
| Tropical | 201 |
| Warm | 194 |
| Sea surface temperature | 192 |
| Climate | 187 |
| Deep | 182 |
| Spatial | 180 |
| Winter | 176 |
| Basin | 170 |
| Regional | 161 |
| Subtropical | 160 |
| Surface salinity | 157 |
| Upper ocean | 155 |
| Argo float | 154 |
| Interannual | 152 |
| Flux | 150 |
| Assimilation | 149 |
| Simulation | 149 |
| Atmospheric | 148 |
| Error | 147 |
| Oceanic | 147 |
| Subsurface | 145 |
| Equatorial | 144 |
| Summer | 144 |
| Boundary | 139 |
| Gyre | 139 |
| Indian | 138 |
| Sst | 136 |
| Sea surface salinity | 132 |
| Mesoscale | 130 |
| Ocean model | 128 |
| Velocity | 128 |
| Distribution | 123 |
| Meridional | 122 |
| Northern | 122 |
| Degree n | 121 |
| Oscillation | 121 |
| Fluxe | 120 |
| Advection | 117 |
| Indian ocean | 117 |
| Budget | 113 |
| Temporal | 110 |
| Data assimilation | 108 |
| Sss | 108 |
| Layer depth | 107 |
| Forecast | 105 |
| Latitude | 105 |
| Mix layer depth | 104 |
| Decadal | 103 |
| Global ocean | 102 |
| Mechanism | 102 |
| Physical | 102 |
| Stratification | 102 |
| Wave | 102 |
| Driven | 101 |
| Dynamic | 99 |
| Degree s | 98 |
| Water mass | 98 |
| Energy | 97 |
| Concentration | 95 |
| Large scale | 94 |
| Altimetry | 93 |
| Hydrographic | 92 |
| Atmosphere | 91 |
| Pacific ocean | 91 |
| Reanalysis | 91 |
| Thermocline | 91 |
| Track | 91 |
| Resolve | 90 |
| Freshwater | 89 |
| Geostrophic | 88 |
| Cool | 87 |
| Gradient | 87 |
| Observational | 87 |
| High resolution | 86 |
| Heat content | 85 |
| Kuroshio | 85 |
| Precipitation | 85 |
| Profil | 84 |
| Stress | 83 |
| Signal | 82 |
| Evolution | 81 |
| Net | 80 |
| Southern ocean | 80 |
| Coast | 79 |
| Interaction | 79 |
| Ocean heat | 79 |
| Relationship | 79 |
| Air sea | 78 |
| Assimilate | 78 |
| Zonal | 78 |
| Coastal | 77 |
| Dataset | 77 |
| Monthly | 77 |
| Wind stress | 77 |
| Antarctic | 76 |
| Degree e | 76 |
| Agreement | 75 |
| Degree c | 75 |
| Interannual | 75 |

| | |
|---|---|
| variability | |
| Long term | 75 |
| Sea surface height | 75 |
| Overturn | 74 |
| Prediction | 74 |
| Atlantic ocean | 73 |
| Ocean circulation | 72 |
| Weak | 72 |
| Circulation model | 71 |
| Ekman | 71 |
| Data set | 70 |
| Peak | 70 |
| Westward | 70 |
| El nino | 69 |
| Ice | 69 |
| Chlorophyll | 68 |
| Monitor | 68 |
| Profil float | 68 |

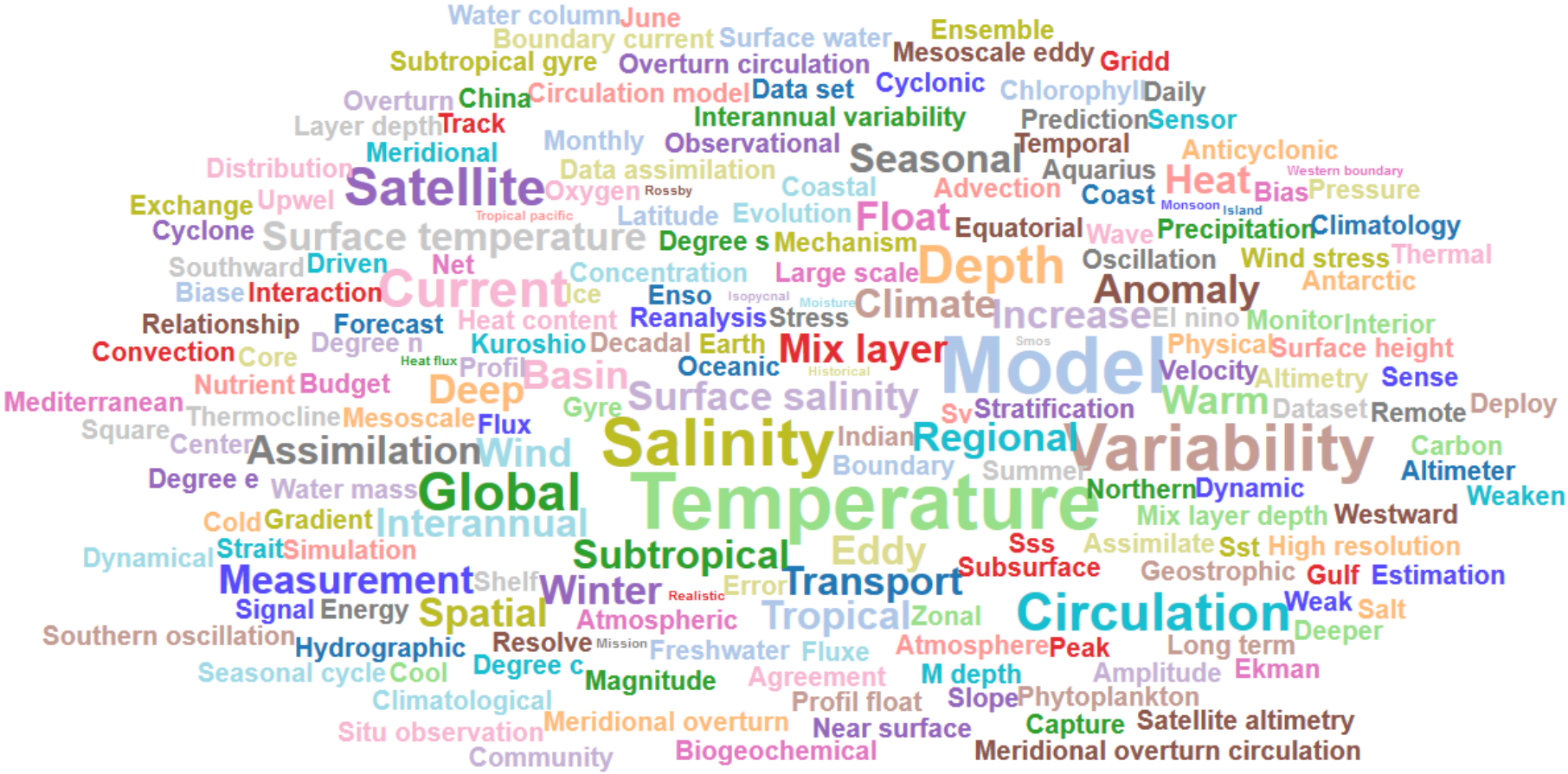
| | |
|---|---|
| Earth | 67 |
| Cold | 66 |
| Overturn circulation | 66 |
| Upwel | 66 |
| M depth | 65 |
| Magnitude | 65 |
| Amplitude | 64 |
| Aquarius | 63 |
| Climatological | 63 |
| Cyclonic | 63 |
| Nutrient | 63 |
| Ocean salinity | 63 |
| Bias | 62 |
| Core | 62 |
| Enso | 62 |
| Gulf | 62 |
| Mesoscale eddy | 62 |
| Argo data | 61 |

| | |
|---|---|
| Marine | 61 |
| Shelf | 61 |
| Surface water | 60 |
| Interior | 59 |
| Phytoplankton | 59 |
| Ensemble | 58 |
| Meridional overturn | 58 |
| Near surface | 58 |
| Situ observation | 58 |
| Strait | 58 |
| Capture | 57 |
| Center | 57 |
| Ocean heat content | 57 |
| Remote | 57 |
| Seasonal cycle | 57 |
| Sense | 57 |
| Sv | 57 |
| Biogeochemical | 56 |

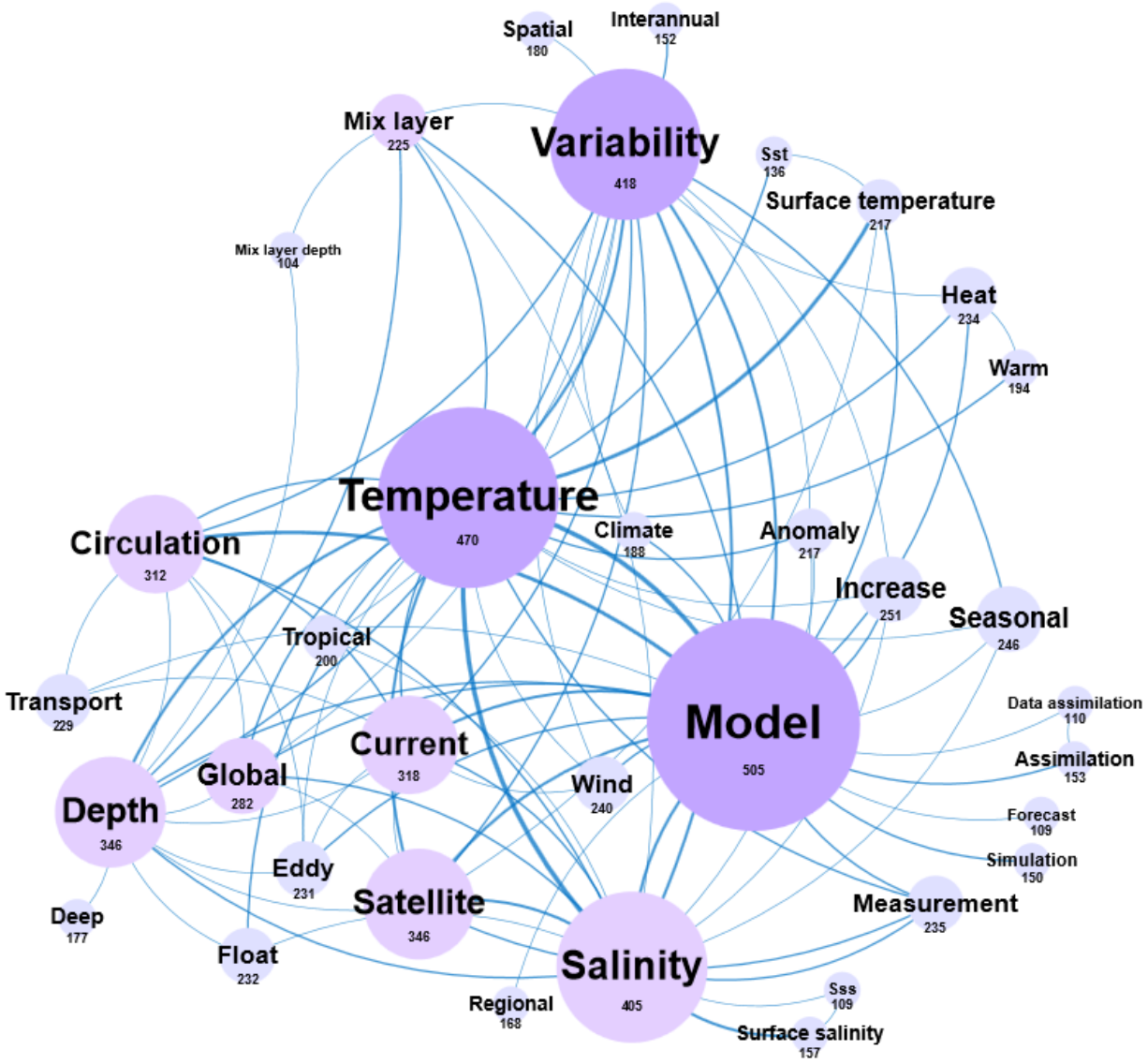
| | |
|---|---|
| Boundary current | 56 |
| Convection | 56 |
| Meridional overturn circulation | 56 |
| Southward | 56 |
| Biase | 55 |
| Carbon | 55 |
| Climatology | 55 |
| Southern oscillation | 55 |
| Subtropical gyre | 55 |
| Anticyclonic | 54 |
| Cyclone | 54 |
| Oxygen | 54 |
| Sensor | 54 |
| Daily | 53 |
| June | 53 |
| Mediterranean | 53 |
| Pressure | 53 |
| China | 52 |

| | |
|---|---|
| Community | 52 |
| Dynamical | 52 |
| Estimation | 52 |
| Satellite altimetry | 52 |
| Square | 52 |
| Water column | 52 |
| Deeper | 51 |
| Deploy | 51 |
| Exchange | 51 |
| Gridd | 51 |
| Salt | 51 |
| Slope | 51 |
| Thermal | 51 |
| Weaken | 51 |
| Altimeter | 50 |
| Heat flux | 50 |

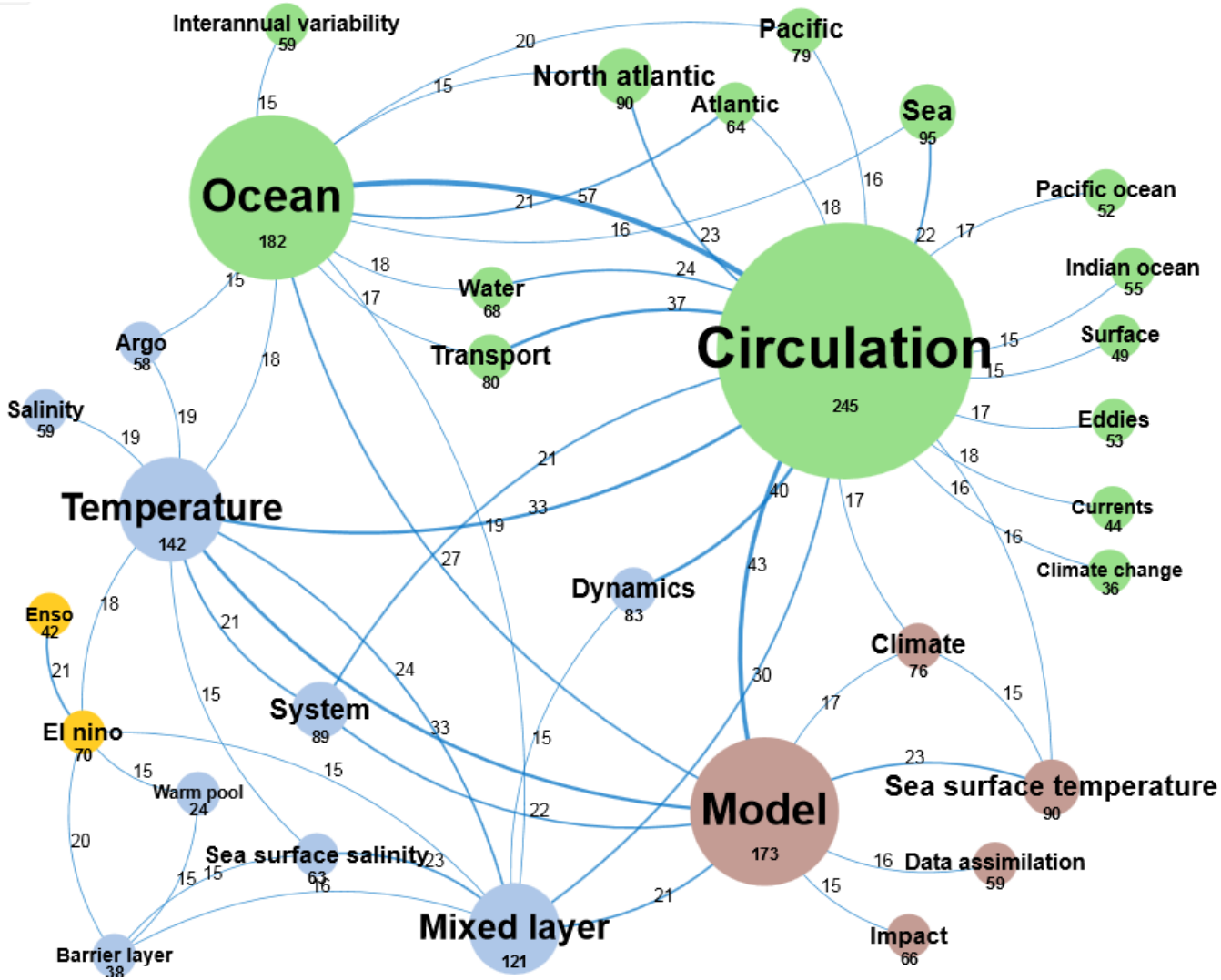
### 3.2. 200 top concepts (without Ocean, Sea, Marine, Argo)



### 3.3. Network of key concepts (without Ocean, Sea, Marine, Argo)



## Network of key words



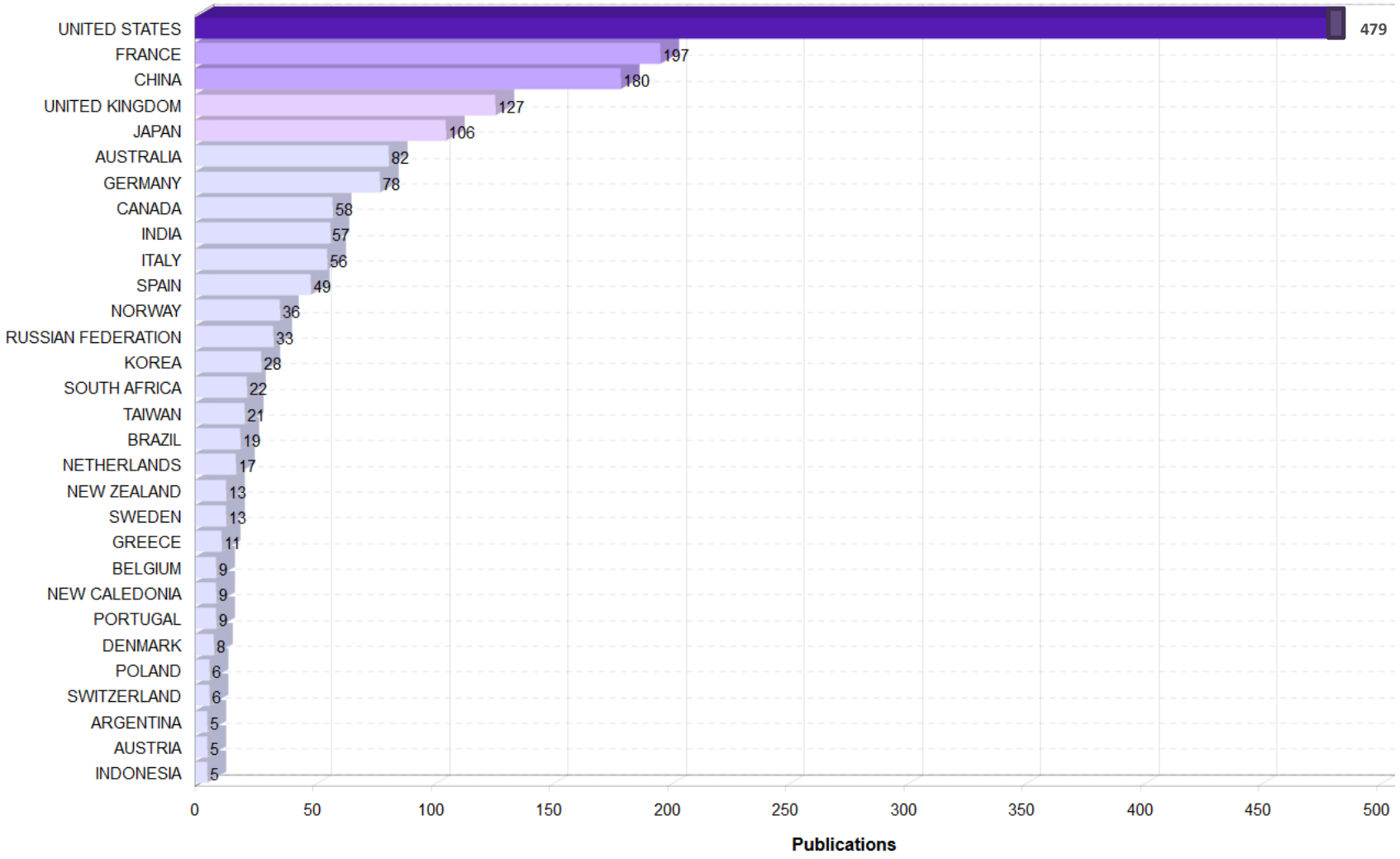
## 4. Top journals (2014-2016 articles)

| Source Titles | Articles | % of 1064 | Facteur d'impact (JCR 2016) |
|---|---|---|---|
| JOURNAL OF GEOPHYSICAL RESEARCH OCEANS | 224 | 21.053 | 2,939 |
| GEOPHYSICAL RESEARCH LETTERS | 76 | 7.143 | 4,253 |
| JOURNAL OF PHYSICAL OCEANOGRAPHY | 70 | 6.579 | 3,13 |
| JOURNAL OF CLIMATE | 53 | 4.981 | 4,161 |
| OCEAN SCIENCE | 37 | 3.477 | 2,821 |
| DEEP SEA RESEARCH PART I OCEANOGRAPHIC RESEARCH PAPERS | 35 | 3.289 | 2,48 |
| OCEAN DYNAMICS | 32 | 3.008 | 1,597 |
| BIOGEOSCIENCES | 27 | 2.538 | 3,851 |
| JOURNAL OF ATMOSPHERIC AND OCEANIC TECHNOLOGY | 27 | 2.538 | 2,233 |
| PROGRESS IN OCEANOGRAPHY | 27 | 2.538 | 3,391 |
| CLIMATE DYNAMICS | 26 | 2.444 | 4,146 |
| JOURNAL OF MARINE SYSTEMS | 25 | 2.350 | 2,439 |
| REMOTE SENSING OF ENVIRONMENT | 25 | 2.350 | 6,265 |
| OCEAN MODELLING | 24 | 2.256 | 3,341 |
| JOURNAL OF OCEANOGRAPHY | 22 | 2.068 | 1,347 |
| ACTA OCEANOLOGICA SINICA | 17 | 1.598 | 0,73 |
| JOURNAL OF OPERATIONAL OCEANOGRAPHY | 17 | 1.598 | 3,342 |
| GLOBAL BIOGEOCHEMICAL CYCLES | 16 | 1.504 | 4,655 |
| DEEP SEA RESEARCH PART II TOPICAL STUDIES IN OCEANOGRAPHY | 15 | 1.410 | 1,713 |
| OCEANOGRAPHY | 15 | 1.410 | 3,22 |
| MONTHLY WEATHER REVIEW | 13 | 1.222 | 3,043 |
| SCIENTIFIC REPORTS | 12 | 1.128 | 4,259 |
| CHINESE JOURNAL OF OCEANOLOGY AND LIMNOLOGY | 11 | 1.034 | 0,688 |
| NATURE CLIMATE CHANGE | 11 | 1.034 | 19,304 |
| ADVANCES IN ATMOSPHERIC SCIENCES | 10 | 0.940 | 1,483 |
| CONTINENTAL SHELF RESEARCH | 10 | 0.940 | 2,064 |
| QUARTERLY JOURNAL OF THE ROYAL METEOROLOGICAL SOCIETY | 10 | 0.940 | 3,444 |
| IZVESTIYA ATMOSPHERIC AND OCEANIC PHYSICS | 9 | 0.846 | 0,778 |
| OCEANOLOGY | 8 | 0.752 | 0,492 |
| SCIENCE CHINA EARTH SCIENCES | 8 | 0.752 | 1,989 |
| BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY | 7 | 0.658 | 7,281 |
| IEEE GEOSCIENCE AND REMOTE SENSING LETTERS | 7 | 0.658 | 2,761 |
| INTERNATIONAL JOURNAL OF REMOTE SENSING | 7 | 0.658 | 1,724 |
| IEEE JOURNAL OF SELECTED TOPICS IN APPLIED EARTH OBSERVATIONS AND REMOTE SENSING | 6 | 0.564 | 2,913 |
| MARINE GEODESY | 5 | 0.470 | 1 |
| NATURE COMMUNICATIONS | 5 | 0.470 | 12,124 |
| NATURE GEOSCIENCE | 5 | 0.470 | 13,941 |
| SCIENCE | 5 | 0.470 | 37,205 |

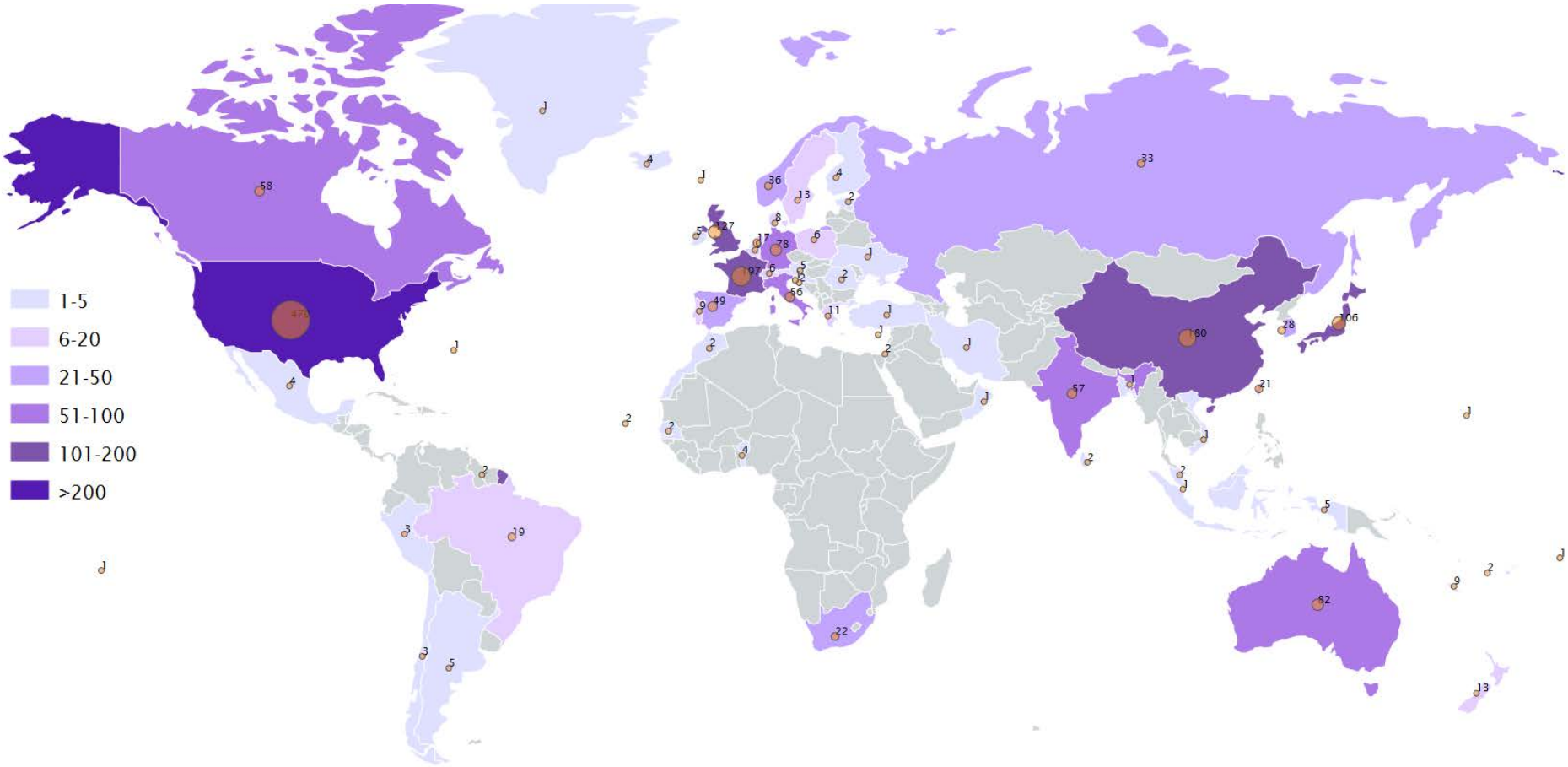
| | | | |
|---|---|---|---|
| ATMOSPHERE OCEAN | 4 | 0.376 | 0,986 |
| IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING | 4 | 0.376 | 4,942 |
| JOURNAL OF MARINE RESEARCH | 4 | 0.376 | 0,935 |
| ADVANCES IN SPACE RESEARCH | 3 | 0.282 | 1,401 |
| DOKLADY EARTH SCIENCES | 3 | 0.282 | 0,519 |
| GEOSCIENTIFIC MODEL DEVELOPMENT | 3 | 0.282 | 3,458 |
| JOURNAL OF OCEAN UNIVERSITY OF CHINA | 3 | 0.282 | 0,601 |
| NEW ZEALAND JOURNAL OF MARINE AND FRESHWATER RESEARCH | 3 | 0.282 | 0,938 |
| REVIEWS OF GEOPHYSICS | 3 | 0.282 | 12,34 |
| SCIENCE ADVANCES | 3 | 0.282 | - |
| SCIENTIFIC DATA | 3 | 0.282 | 4,836 |
| SCIENTIFIC WORLD JOURNAL | 3 | 0.282 | 4,413 |
| SURVEYS IN GEOPHYSICS | 3 | 0.282 | - |
| AQUATIC ECOSYSTEM HEALTH MANAGEMENT | 2 | 0.188 | 0,742 |
| ATMOSPHERIC SCIENCE LETTERS | 2 | 0.188 | 1,504 |
| DYNAMICS OF ATMOSPHERES AND OCEANS | 2 | 0.188 | 1,111 |
| EARTH SYSTEM SCIENCE DATA | 2 | 0.188 | 6,696 |
| FRONTIERS OF EARTH SCIENCE | 2 | 0.188 | 1,051 |
| JOURNAL OF ADVANCES IN MODELING EARTH SYSTEMS | 2 | 0.188 | 4,189 |
| JOURNAL OF GEOPHYSICAL RESEARCH ATMOSPHERES | 2 | 0.188 | 3,454 |
| LIMNOLOGY AND OCEANOGRAPHY | 2 | 0.188 | 3,383 |
| LIMNOLOGY AND OCEANOGRAPHY METHODS | 2 | 0.188 | 1,992 |
| MARINE ECOLOGY PROGRESS SERIES | 2 | 0.188 | 2,292 |
| OCEAN SCIENCE JOURNAL | 2 | 0.188 | - |
| PROCEEDINGS OF SPIE | 2 | 0.188 | 0,611 |
| SCIENTIA MARINA | 2 | 0.188 | 1,009 |
| WEATHER AND FORECASTING | 2 | 0.188 | 1,718 |

## 5. Author's countries (2014-2016 articles)

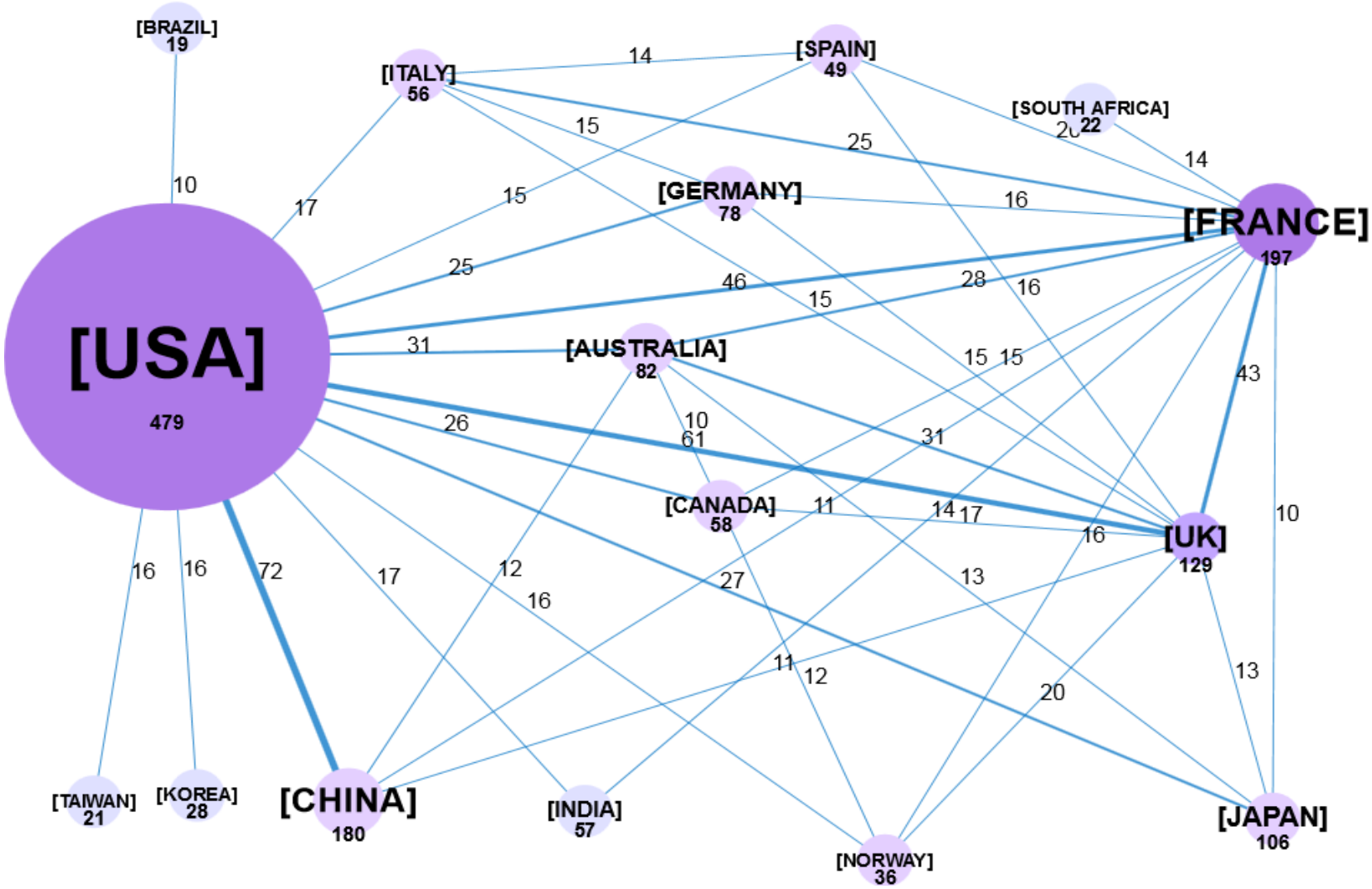
### 5.1. Top countries (at least 5 articles)



## 5.2. World map



## Network of main countries (at least 10 co-articles)



## 5.3. Evolution of the number of publications per country (at least 5 articles)

| | 2014 | 2015 | 2016 | Total |
|---|---|---|---|---|
| ARGENTINA | 2 | 0 | 3 | 5 |
| AUSTRALIA | 23 | 39 | 20 | 82 |
| AUSTRIA | 1 | 1 | 3 | 5 |
| BRAZIL | 6 | 8 | 5 | 19 |
| CANADA | 9 | 26 | 23 | 58 |
| CHINA | 53 | 66 | 61 | 180 |
| DENMARK | 1 | 3 | 4 | 8 |
| FRANCE | 65 | 68 | 64 | 197 |
| GERMANY | 18 | 28 | 32 | 78 |
| GREECE | 5 | 2 | 4 | 11 |
| INDIA | 18 | 20 | 19 | 57 |
| INDONESIA | 1 | 1 | 3 | 5 |
| ITALY | 16 | 15 | 25 | 56 |
| JAPAN | 31 | 40 | 35 | 106 |
| KOREA | 11 | 12 | 5 | 28 |
| NETHERLANDS | 3 | 2 | 12 | 17 |
| NEW CALEDONIA | 5 | 3 | 1 | 9 |
| NEW ZEALAND | 6 | 3 | 4 | 13 |
| NORWAY | 12 | 11 | 13 | 36 |
| POLAND | 2 | 1 | 3 | 6 |
| PORTUGAL | 2 | 5 | 2 | 9 |
| RUSSIAN FEDERATION | 7 | 5 | 21 | 33 |
| SOUTH AFRICA | 8 | 5 | 9 | 22 |
| SPAIN | 13 | 16 | 20 | 49 |
| SWEDEN | 5 | 2 | 6 | 13 |
| SWITZERLAND | 2 | 3 | 1 | 6 |
| TAIWAN | 9 | 6 | 6 | 21 |
| UNITED KINGDOM | 42 | 48 | 37 | 127 |
| UNITED STATES | 167 | 146 | 166 | 479 |
| BELGIUM | 0 | 4 | 5 | 9 |

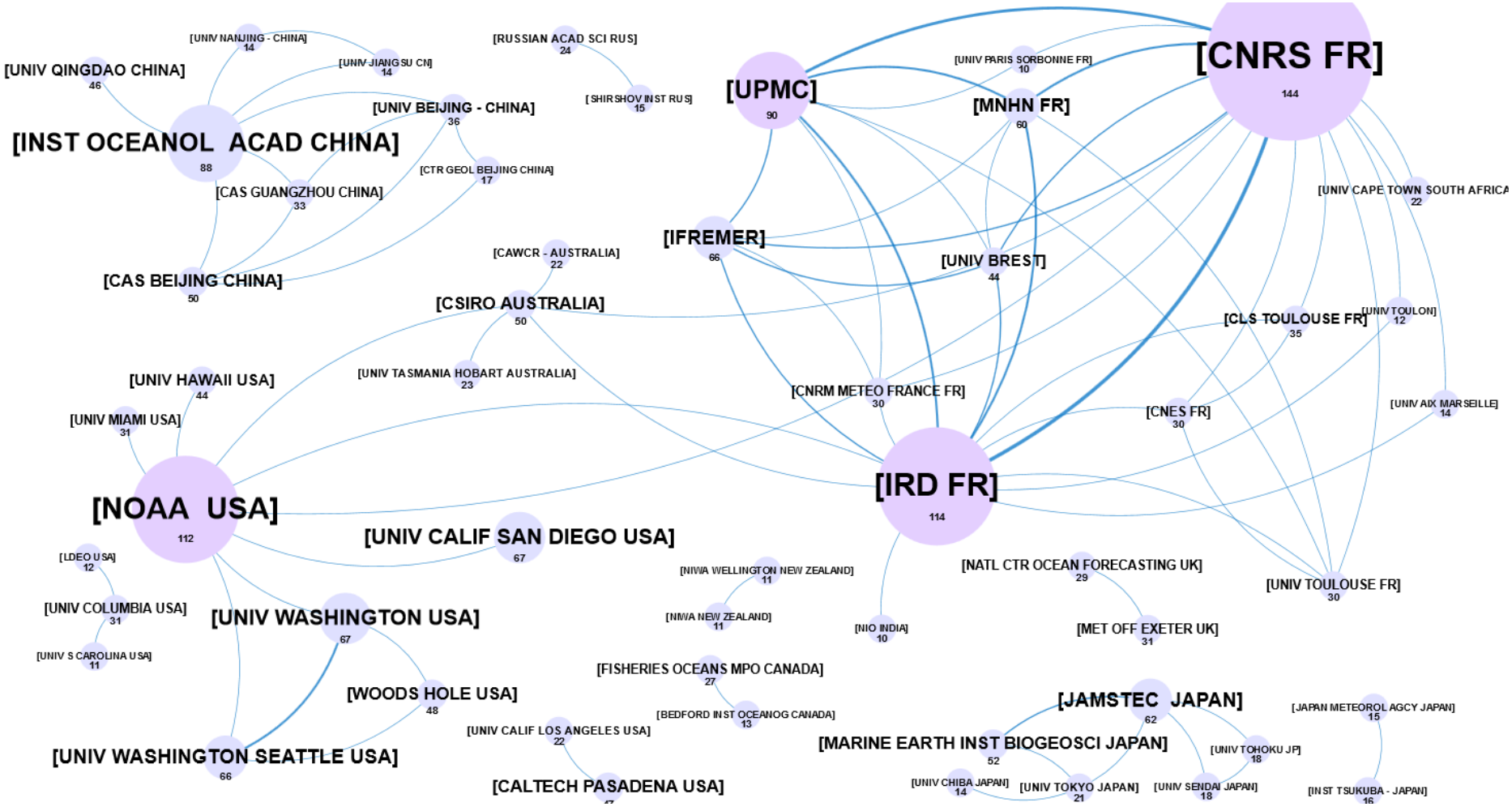
# 6. Author's affiliations (2014-2016 articles)

## 6.1. Top agencies

| Organization | Number articles |
|---|---|
| [CNRS FR] | 144 |
| [IRD FR] | 114 |
| [NOAA USA] | 112 |
| [UPMC] + IPSL | 90 |
| [CHINESE ACAD SCI CHINA] | 88 |
| [INST OCEANOL ACAD CHINA] | 88 |
| [UNIV CALIF SAN DIEGO USA] | 67 |
| [UNIV WASHINGTON USA] | 67 |
| [IFREMER] | 66 |
| [UNIV WASHINGTON SEATTLE USA] | 66 |
| [JAMSTEC JAPAN] | 62 |
| [MNHN FR] | 60 |
| [MARINE EARTH INST BIOGEOSCI JAPAN] | 52 |
| [CSIRO AUSTRALIA] | 50 |
| [WOODS HOLE USA] | 48 |
| [CALTECH PASADENA USA] | 47 |
| [UNIV QINGDAO CHINA] | 46 |
| [UNIV BREST] | 44 |
| [UNIV HAWAII USA] | 44 |
| [UNIV SOUTHAMPTON NOC UK] | 40 |
| [UNIV BEIJING - CHINA] | 36 |
| [CAS INST OCEANOL QINGDAO CHINA] | 35 |
| [CLS TOULOUSE FR] | 35 |
| [CAS GUANGZHOU CHINA] | 33 |
| [CAS GUANGZHOU GUANGDONG CHINA] | 32 |
| [MET OFF EXETER UK] | 31 |
| [UNIV COLUMBIA USA] | 31 |
| [UNIV MIAMI USA] | 31 |
| [CNES FR] | 30 |
| [CNRM METEO FRANCE FR] | 30 |
| [MERCATOR OCEAN FR] | 30 |
| [UNIV TOULOUSE FR] | 30 |
| [CSIC SPAIN] | 29 |
| [IFM GEOMAR KIEL GERMANY] | 29 |
| [NATL CTR OCEAN FORECASTING UK] | 29 |
| [FISHERIES OCEANS MPO CANADA] | 27 |
| [NASA USA] | 25 |
| [RUSSIAN ACAD SCI RUS] | 24 |
| [UNIV HAMBURG GERMANY] | 24 |
| [ANTARCTIC CRC HOBART TAS AUSTRALIA] | 23 |
| [UNIV TASMANIA HOBART AUSTRALIA] | 23 |
| [CAWCR - AUSTRALIA] | 22 |
| [GITAM INST VISAKHAPATNAM PRADESH INDIA] | 22 |
| [MASSACHUSETTS INST TECHNOL USA] | 22 |
| [UNIV CALIF LOS ANGELES USA] | 22 |
| [UNIV CAPE TOWN SOUTH AFRICA] | 22 |
| [UNIV MARYLAND USA] | 22 |
| [CLS FR] | 21 |
| [UNIV TOKYO JAPAN] | 21 |
| [MERCATOR OCEAN RAMONVILLE ST AGNE FRANCE] | 20 |
| [CNRM TOULOUSE FRANCE] | 18 |
| [UNIV FLORIDA USA] | 18 |
| [UNIV PRINCETON USA] | 18 |
| [UNIV SENDAI JAPAN] | 18 |
| [UNIV TOHOKU JP] | 18 |
| [CTR GEOL BEIJING CHINA] | 17 |
| [COLL OCEAN ATMOSPHER USA] | 16 |
| [INST TSUKUBA - JAPAN] | 16 |
| [CNR ITALY] | 15 |
| [CTR EUROMEDITERRANEO CAMBIAMENTI CLIMAT ITALY] | 15 |
| [CTR NATL ATMOSPH BOULDER CO USA] | 15 |
| [JAPAN METEOROL AGCY JAPAN] | 15 |
| [NIERSC RUS] | 15 |
| [PLYMOUTH MAR LAB PML UK] | 15 |
| [SHIRSHOV INST RUS] | 15 |
| [AUSTRALIAN BUREAU METEOROL MELBOURNE AUSTRALIA] | 14 |
| [INST FISHERIES INLAND SEA HIROSHIMA JAPAN] | 14 |
| [NATL INST OCEANOG INDIA] | 14 |
| [UNIV AIX MARSEILLE] | 14 |
| [UNIV CHIBA JAPAN] | 14 |
| [UNIV COLORADO USA] | 14 |
| [UNIV JIANGSU CN] | 14 |
| [UNIV NANJING - CHINA] | 14 |
| [AWI GERMANY] | 13 |
| [BEDFORD INST OCEANOG CANADA] | 13 |

| | |
|---|---|
| [INST WEGENER] | 13 |
| [UNIV CALIF SANTA CRUZ USA] | 13 |
| [UNIV HOKKAIDO JAPAN] | 13 |
| [UNIV TEXAS USA] | 13 |
| [UNIV XIAMEN CHINA] | 13 |
| [ECMWF BERKS UK] | 12 |
| [LDEO USA] | 12 |
| [OGS TRIESTE ITALY] | 12 |
| [UNIV DUKE USA] | 12 |
| [UNIV N CAROLINA USA] | 12 |
| [UNIV PLYMOUTH UK] | 12 |
| [UNIV TOULON] | 12 |
| [BRITISH ANTARCTIC SURVEY UK] | 11 |
| [LAMONT DOHERTY EARTH OBSERV NEW YORK USA] | 11 |
| [NIWA NEW ZEALAND] | 11 |
| [NIWA WELLINGTON NEW ZEALAND] | 11 |
| [UNIV BREMEN GERMANY] | 11 |
| [UNIV OREGON USA] | 11 |
| [UNIV READING UK] | 11 |
| [UNIV S CAROLINA USA] | 11 |
| [IEO SPAIN] | 10 |
| [NATL MARINE DATA INFORMAT SERV TIANJIN CHINA] | 10 |
| [NATL TAIWAN UNIV NTU TAIPEI TAIWAN] | 10 |
| [NERSC BERGEN NORWAY] | 10 |
| [NIO INDIA] | 10 |
| [OGS ITALY] | 10 |
| [UNIV NATL NORMAL NTNU TAIPEI TAIWAN] | 10 |
| [UNIV PARIS SORBONNE FR] | 10 |
| [UNIV S CAROLINA CHARLESTON USA] | 10 |

## 6.2. Main collaborations between organizations (at least 10 co-articles)



## 6.3. Evolution of collaboration of top organizations

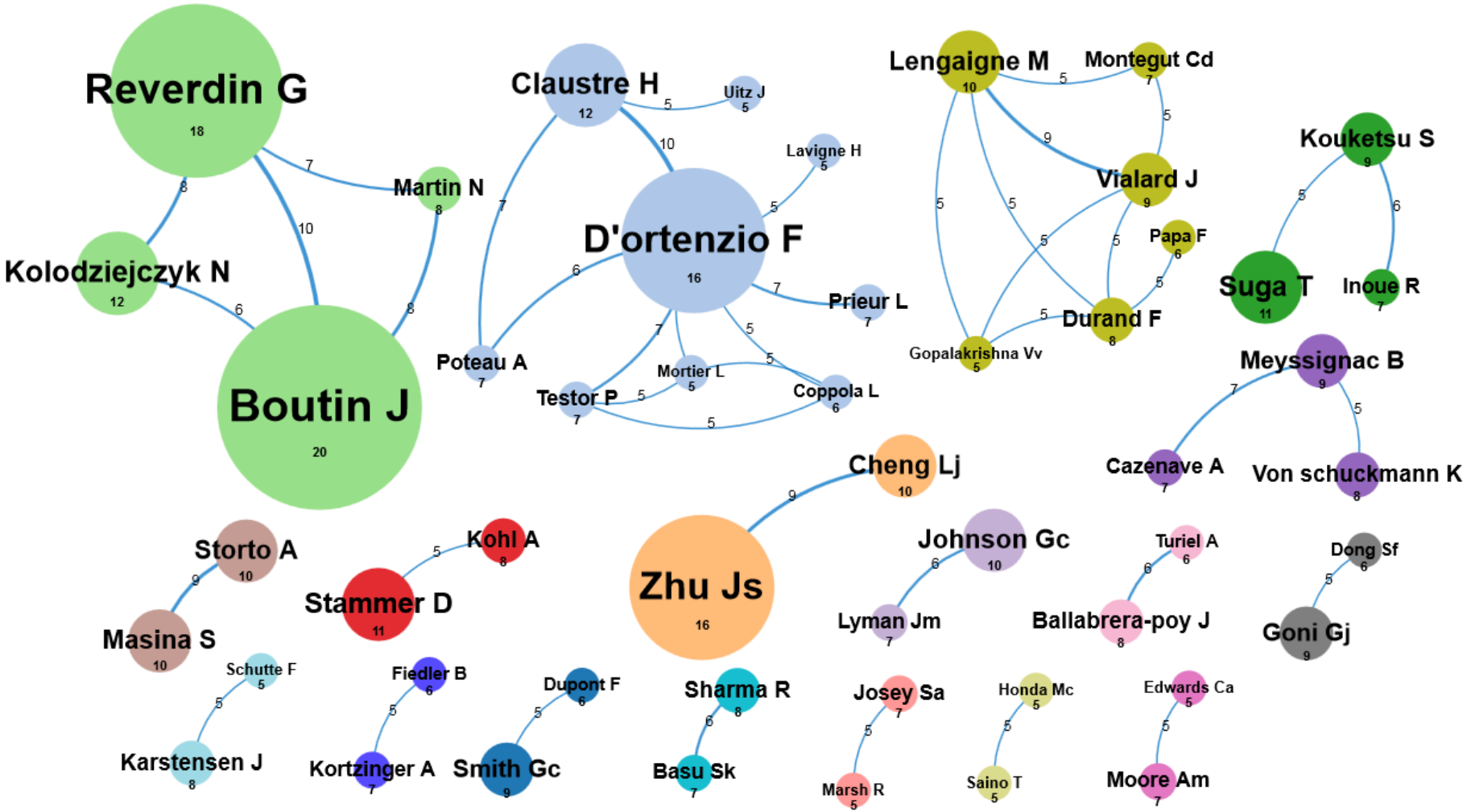
| Organizations | 2014 | 2015 | 2016 |
|---|---|---|---|
| [CNRS FR] | 52 | 49 | 43 |
| [IRD FR] | 46 | 34 | 34 |
| [NOAA USA] | 43 | 38 | 31 |
| [UPMC] | 36 | 32 | 22 |
| [INST OCEANOL ACAD CHINA] | 25 | 32 | 31 |
| [UNIV CALIF SAN DIEGO USA] | 20 | 18 | 29 |
| [UNIV WASHINGTON USA] | 20 | 17 | 30 |
| [IFREMER] | 27 | 13 | 26 |
| [JAMSTEC JAPAN] | 14 | 22 | 26 |
| [MNHN FR] | 27 | 17 | 16 |
| [MARINE EARTH INST BIOGEOSCI JAPAN] | 11 | 19 | 22 |
| [CAS BEIJING CHINA] | 10 | 20 | 20 |
| [CSIRO AUSTRALIA] | 17 | 22 | 11 |
| [WOODS HOLE USA] | 15 | 14 | 19 |
| [CALTECH PASADENA USA] | 19 | 15 | 13 |
| [UNIV QINGDAO CHINA] | 14 | 13 | 19 |
| [UNIV BREST] | 14 | 11 | 19 |
| [UNIV HAWAII USA] | 19 | 16 | 9 |
| [UNIV SOUTHAMPTON NOC UK] | 17 | 15 | 8 |
| [UNIV BEIJING - CHINA] | 7 | 15 | 14 |
| [CAS INST OCEANOL QINGDAO CHINA] | 7 | 15 | 13 |
| [CLS TOULOUSE FR] | 8 | 14 | 13 |
| [CAS GUANGZHOU CHINA] | 8 | 13 | 12 |
| [MET OFF EXETER UK] | 7 | 17 | 7 |
| [UNIV COLUMBIA USA] | 9 | 8 | 14 |
| [UNIV MIAMI USA] | 10 | 12 | 9 |
| [CNES FR] | 11 | 12 | 7 |
| [CNRM METEO FRANCE FR] | 13 | 6 | 11 |
| [MERCATOR OCEAN FR] | 4 | 11 | 15 |
| [UNIV TOULOUSE FR] | 16 | 7 | 7 |
| [CSIC SPAIN] | 9 | 9 | 11 |
| [IFM GEOMAR KIEL GERMANY] | 11 | 9 | 9 |
| [NATL CTR OCEAN FORECASTING UK] | 6 | 16 | 7 |
| [FISHERIES OCEANS MPO CANADA] | 4 | 14 | 9 |
| [NASA USA] | 7 | 8 | 10 |
| [RUSSIAN ACAD SCI RUS] | 4 | 2 | 18 |
| [UNIV HAMBURG GERMANY] | 3 | 11 | 10 |
| [UNIV TASMANIA HOBART AUSTRALIA] | 11 | 8 | 4 |
| [CAWCR - AUSTRALIA] | 12 | 6 | 4 |
| [GITAM INST VISAKHAPATNAM PRADESH INDIA] | 6 | 8 | 8 |
| [MASSACHUSETTS INST TECHNOL USA] | 3 | 11 | 8 |
| [UNIV CALIF LOS ANGELES USA] | 4 | 10 | 8 |
| [UNIV CAPE TOWN SOUTH AFRICA] | 8 | 5 | 9 |
| [UNIV MARYLAND USA] | 12 | 3 | 7 |
| [CLS FR] | 5 | 10 | 6 |
| [UNIV TOKYO JAPAN] | 8 | 8 | 5 |

# 7. Authors (2014-2016 articles)

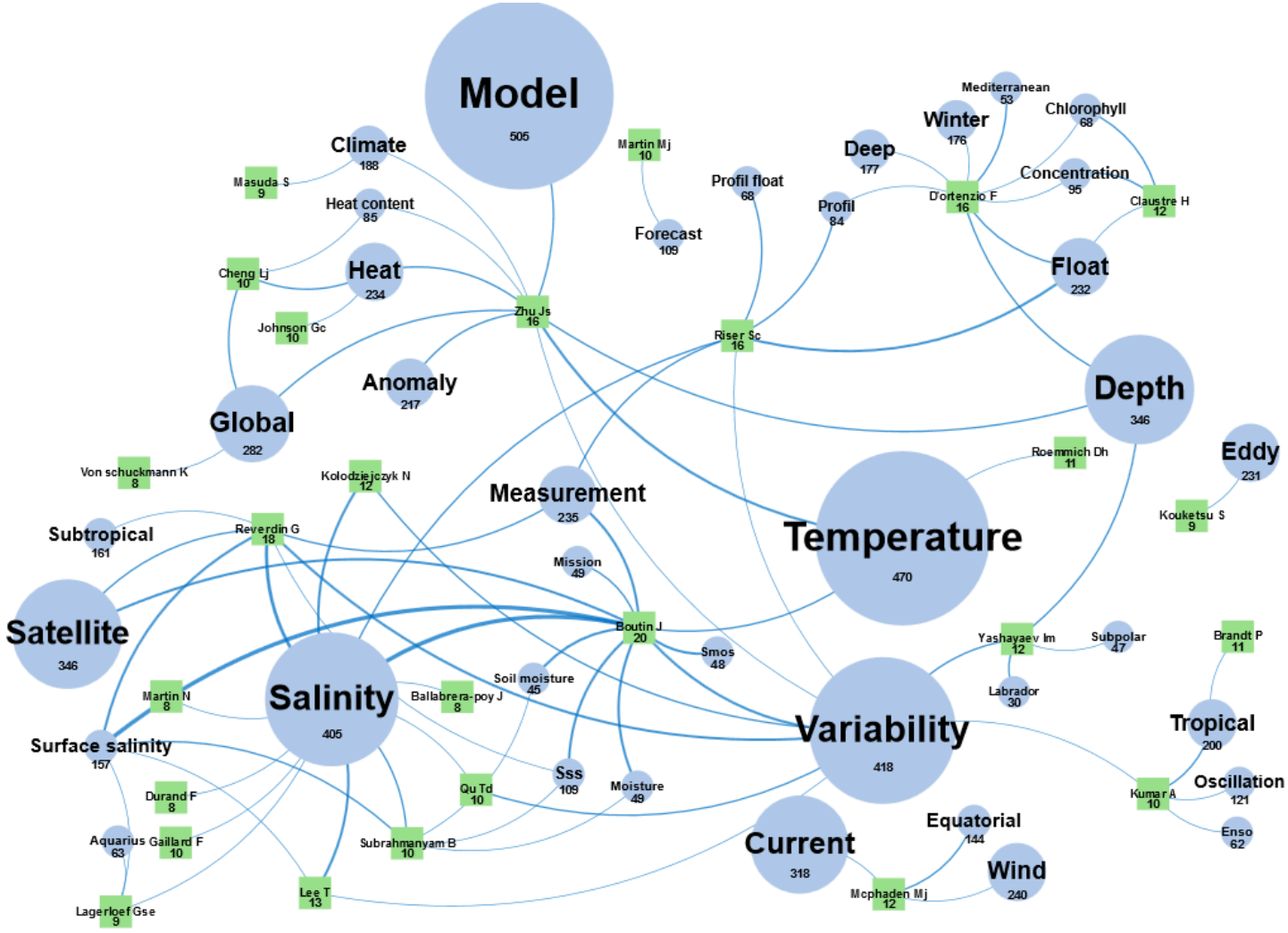
## 7.1. Top authors (at least 8 articles)

| Author | Number articles |
|---|---|
| Boutin J | 20 |
| Reverdin G | 18 |
| D'ortenzio F | 16 |
| Riser Sc | 16 |
| Zhu Js | 16 |
| Lee T | 13 |
| Claustre H | 12 |
| Kolodziejczyk N | 12 |
| Mcphaden Mj | 12 |
| Yashayaev Im | 12 |
| Brandt P | 11 |
| Roemmich Dh | 11 |
| Stammer D | 11 |
| Suga T | 11 |
| Balmaseda Ma | 10 |
| Cheng Lj | 10 |
| Gaillard F | 10 |
| Johnson Gc | 10 |
| Kumar A | 10 |
| Lengaigne M | 10 |
| Martin Mj | 10 |
| Masina S | 10 |
| Qu Td | 10 |
| Ravichandran M | 10 |
| Storto A | 10 |
| Subrahmanyam B | 10 |
| Wang Dx | 10 |
| Chen Gx | 9 |
| Gille St | 9 |
| Goni Gj | 9 |
| Kouketsu S | 9 |
| Lagerloef Gse | 9 |
| Maes C | 9 |
| Masuda S | 9 |
| Meyssignac B | 9 |
| Smith Gc | 9 |
| Vialard J | 9 |
| Wang Fj | 9 |
| Wang Xd | 9 |
| Wijffels Se | 9 |
| Ballabrera-poy J | 8 |
| Durand F | 8 |
| Feng M | 8 |
| Karstensen J | 8 |
| Kohl A | 8 |
| Le Traon Py | 8 |
| Lee Cm | 8 |
| Martin N | 8 |
| Mazloff Mr | 8 |
| Qiu B | 8 |
| Sharma R | 8 |
| Sprintall J | 8 |
| Sutton Pjh | 8 |
| Talley Ld | 8 |
| Von schuckmann K | 8 |
| Zhang Rh | 8 |

## 7.2. Network of main authors (at least 5 co- articles)



## 7.3. Network of main authors/concepts (at least 8 articles)



# 8. List of 2014-2016 articles cited at least 40 times from 2014 to 2018

Total Publications : 1064
Total Citations (26/02/2018) : 8585
Average citations per item : 8.07

| | 2014 ◄ | 2015 | 2016 | 2017 | 2018 ► | Total | Average Citations per Year |
|---|---|---|---|---|---|---|---|
| | 318 | 1429 | 2956 | 3656 | 220 | 8585 | 1430.83 |
| 1. **Causes and impacts of the 2014 warm anomaly in the NE Pacific**<br>By: Bond, Nicholas A.; Cronin, Meghan F.; Freeland, Howard; et al.<br>GEOPHYSICAL RESEARCH LETTERS Volume: 42 Issue: 9 Pages: 3414-3420 Published: MAY 16 2015 | 0 | 7 | 41 | 77 | 4 | 129 | 32.25 |
| 2. **HYMEX A 10-Year Multidisciplinary Program on the Mediterranean Water Cycle**<br>By: Drobinski, P.; Ducrocq, V.; Alpert, P.; et al.<br>BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY Volume: 95 Issue: 7 Pages: 1063-1082 Published: JUL 2014 | 14 | 24 | 61 | 27 | 2 | 129 | 25.80 |
| 3. **Global Seasonal forecast system version 5 (GloSea5): a high-resolution seasonal forecast system**<br>By: MacLachlan, C.; Arribas, A.; Peterson, K. A.; et al.<br>QUARTERLY JOURNAL OF THE ROYAL METEOROLOGICAL SOCIETY Volume: 141 Issue: 689 Pages: 1072-1084 Part: B Published: APR 2015 | 5 | 18 | 36 | 41 | 5 | 105 | 26.25 |
| 4. **Unabated planetary warming and its ocean structure since 2006**<br>By: Roemmich, Dean; Church, John; Gilson, John; et al.<br>NATURE CLIMATE CHANGE Volume: 5 Issue: 3 Pages: 240-245 Published: MAR 2015 | 0 | 14 | 43 | 39 | 3 | 99 | 24.75 |
| 5. **Global Patterns of Diapycnal Mixing from Measurements of the Turbulent Dissipation Rate**<br>By: Waterhouse, Amy F.; MacKinnon, Jennifer A.; Nash, Jonathan D.; et al.<br>JOURNAL OF PHYSICAL OCEANOGRAPHY Volume: 44 Issue: 7 Pages: 1854-1872 Published: JUL 2014 | 5 | 14 | 28 | 37 | 4 | 88 | 17.60 |
| 6. **The rate of sea-level rise**<br>By: Cazenave, Anny; Dieng, Habib-Boubacar; Meyssignac, Benoit; et al.<br>NATURE CLIMATE CHANGE Volume: 4 Issue: 5 Pages: 358-361 Published: MAY 2014 | 9 | 17 | 25 | 31 | 2 | 84 | 16.80 |
| 7. **Multidecadal warming of Antarctic waters**<br>By: Schmidtko, Sunke; Heywood, Karen J.; Thompson, Andrew F.; et al.<br>SCIENCE Volume: 346 Issue: 6214 Pages: 1227-1231 Published: DEC 5 2014 | 1 | 11 | 30 | 33 | 5 | 80 | 16.00 |
| 8. **Earth's Energy Imbalance**<br>By: Trenberth, Kevin E.; Fasullo, John T.; Balmaseda, Magdalena A.<br>JOURNAL OF CLIMATE Volume: 27 Issue: 9 Pages: 3129-3144 Published: MAY 2014 | 10 | 21 | 23 | 18 | 0 | 72 | 14.40 |
| 9. **Measuring the Atlantic Meridional Overturning Circulation at 26 degrees N**<br>By: McCarthy, G. D.; Smeed, D. A.; Johns, W. E.; et al.<br>PROGRESS IN OCEANOGRAPHY Volume: 130 Pages: 91-111 Published: JAN 2015 | 0 | 15 | 24 | 24 | 2 | 65 | 16.25 |
| 10. **Oceanic mass transport by mesoscale eddies**<br>By: Zhang, Zhengguang; Wang, Wei; Qiu, Bo<br>SCIENCE Volume: 345 Issue: 6194 Pages: 322-324 Published: JUL 18 2014 | 1 | 18 | 21 | 23 | 1 | 64 | 12.80 |

| | | 2014 ◄ | 2015 | 2016 | 2017 | 2018 ► | Total | Average Citations per Year |
|---|---|---|---|---|---|---|---|---|
| | | 318 | 1429 | 2956 | 3656 | 220 | 8585 | 1430.83 |
| 11. | **Fifteen years of ocean observations with the global Argo array**<br>By: Riser, Stephen C.; Freeland, Howard J.; Roemmich, Dean; et al.<br>NATURE CLIMATE CHANGE Volume: 6 Issue: 2 Pages: 145-153 Published: FEB 2016 | 0 | 0 | 18 | 42 | 2 | 62 | 20.67 |
| 12. | **Surface-water iron supplies in the Southern Ocean sustained by deep winter mixing**<br>By: Tagliabue, Alessandro; Sallee, Jean-Baptiste; Bowie, Andrew R.; et al.<br>NATURE GEOSCIENCE Volume: 7 Issue: 4 Pages: 314-320 Published: APR 2014 | 6 | 16 | 20 | 15 | 0 | 57 | 11.40 |
| 13. | **Changes in global net radiative imbalance 1985-2012**<br>By: Allan, Richard P.; Liu, Chunlei; Loeb, Norman G.; et al.<br>GEOPHYSICAL RESEARCH LETTERS Volume: 41 Issue: 15 Pages: 5588-5597 Published: AUG 16 2014 | 1 | 14 | 18 | 22 | 0 | 55 | 11.00 |
| 14. | **Evaluation of the GECCO2 ocean synthesis: transports of volume, heat and freshwater in the Atlantic**<br>By: Koehl, Armin<br>QUARTERLY JOURNAL OF THE ROYAL METEOROLOGICAL SOCIETY Volume: 141 Issue: 686 Pages: 166-181 Part: A Published: JAN 2015 | 1 | 8 | 14 | 25 | 2 | 50 | 12.50 |
| 15. | **Global heat and salt transports by eddy movement**<br>By: Dong, Changming; McWilliams, James C.; Liu, Yu; et al.<br>NATURE COMMUNICATIONS Volume: 5 Article Number: 3294 Published: FEB 2014 | 4 | 16 | 16 | 12 | 1 | 49 | 9.80 |
| 16. | **Improved sea level record over the satellite altimetry era (1993-2010) from the Climate Change Initiative project**<br>By: Ablain, M.; Cazenave, A.; Larnicol, G.; et al.<br>OCEAN SCIENCE Volume: 11 Issue: 1 Pages: 67-82 Published: 2015 | 0 | 6 | 19 | 20 | 3 | 48 | 12.00 |
| 17. | **Deep-ocean contribution to sea level and energy budget not detectable over the past decade**<br>By: Llovel, W.; Willis, J. K.; Landerer, F. W.; et al.<br>NATURE CLIMATE CHANGE Volume: 4 Issue: 11 Pages: 1031-1035 Published: NOV 2014 | 1 | 19 | 16 | 12 | 0 | 48 | 9.60 |
| 18. | **Observing the Atlantic Meridional Overturning Circulation yields a decade of inevitable surprises**<br>By: Srokosz, M. A.; Bryden, H. L.<br>SCIENCE Volume: 348 Issue: 6241 Article Number: 1255575 Published: JUN 19 2015 | 0 | 2 | 17 | 23 | 4 | 46 | 11.50 |
| 19. | **Mediterranean Sea large-scale low-frequency ocean variability and water mass formation rates from 1987 to 2007: A retrospective analysis**<br>By: Pinardi, Nadia; Zavatarelli, Marco; Adani, Mario; et al.<br>PROGRESS IN OCEANOGRAPHY Volume: 132 Special Issue: SI Pages: 318-332 Published: MAR 2015 | 3 | 12 | 21 | 9 | 1 | 46 | 11.50 |
| 20. | **ECCO version 4: an integrated framework for non-linear inverse modeling and global ocean state estimation**<br>By: Forget, G.; Campin, J. -M.; Heimbach, P.; et al.<br>GEOSCIENTIFIC MODEL DEVELOPMENT Volume: 8 Issue: 10 Pages: 3071-3104 Published: 2015 | 0 | 1 | 17 | 28 | 0 | 46 | 11.50 |

| | | 2014 ◄ | 2015 | 2016 | 2017 | 2018 ► | Total | Average Citations per Year |
|---|---|---|---|---|---|---|---|---|
| | | 318 | 1429 | 2956 | 3656 | 220 | 8585 | 1430.83 |
| 21. | **Observations, inferences, and mechanisms of the Atlantic Meridional Overturning Circulation: A review**<br>By: Buckley, Martha W.; Marshall, John<br>REVIEWS OF GEOPHYSICS Volume: 54 Issue: 1 Pages: 5-63 Published: MAR 2016 | 0 | 0 | 10 | 30 | 4 | 44 | 14.67 |
| 22. | **Polar Front around the Kerguelen Islands: An up-to-date determination and associated circulation of surface/subsurface waters**<br>By: Park, Young-Hyang; Durand, Isabelle; Kestenare, Elodie; et al.<br>JOURNAL OF GEOPHYSICAL RESEARCH-OCEANS Volume: 119 Issue: 10 Pages: 6575-6592 Published: OCT 2014 | 7 | 18 | 13 | 5 | 1 | 44 | 8.80 |
| 23. | **Investigating hypoxia in aquatic environments: diverse approaches to addressing a complex phenomenon**<br>By: Friedrich, J.; Janssen, F.; Aleynik, D.; et al.<br>BIOGEOSCIENCES Volume: 11 Issue: 4 Pages: 1215-1259 Published: 2014 | 1 | 10 | 19 | 13 | 1 | 44 | 8.80 |
| 24. | **The Ocean Reanalyses Intercomparison Project (ORA-IP)**<br>By: Balmaseda, M. A.; Hernandez, F.; Storto, A.; et al.<br>JOURNAL OF OPERATIONAL OCEANOGRAPHY Volume: 8 Special Issue: SI Supplement: 1 Pages: S80-S97 Published: 2015 | 0 | 4 | 14 | 24 | 1 | 43 | 10.75 |
| 25. | **Quantifying underestimates of long-term upper-ocean warming**<br>By: Durack, Paul J.; Gleckler, Peter J.; Landerer, Felix W.; et al.<br>NATURE CLIMATE CHANGE Volume: 4 Issue: 11 Pages: 999-1005 Published: NOV 2014 | 2 | 12 | 18 | 11 | 0 | 43 | 8.60 |
| 26. | **A review of uncertainty in in situ measurements and data sets of sea surface temperature**<br>By: Kennedy, John J.<br>REVIEWS OF GEOPHYSICS Volume: 52 Issue: 1 Pages: 1-32 Published: MAR 2014 | 7 | 5 | 11 | 19 | 1 | 43 | 8.60 |
| 27. | **About the role of Westerly Wind Events in the possible development of an El Nino in 2014**<br>By: Menkes, Christophe E.; Lengaigne, Matthieu; Vialard, Jerome; et al.<br>GEOPHYSICAL RESEARCH LETTERS Volume: 41 Issue: 18 Pages: 6476-6483 Published: SEP 28 2014 | 0 | 5 | 15 | 22 | 0 | 42 | 8.40 |
| 28. | **An imperative to monitor Earth's energy imbalance**<br>By: von Schuckmann, K.; Palmer, M. D.; Trenberth, K. E.; et al.<br>NATURE CLIMATE CHANGE Volume: 6 Issue: 2 Pages: 138-144 Published: FEB 2016 | 0 | 0 | 16 | 25 | 0 | 41 | 13.67 |
| 29. | **IMPACT OF TYPHOONS ON THE OCEAN IN THE PACIFIC**<br>By: D'Asaro, E. A.; Black, P. G.; Centurioni, L. R.; et al.<br>BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY Volume: 95 Issue: 9 Pages: 1405-1418 Published: SEP 2014 | 4 | 8 | 9 | 20 | 0 | 41 | 8.20 |
| 30. | **An assessment of global and regional sea level for years 1993-2007 in a suite of interannual CORE-II simulations**<br>By: Griffies, Stephen M.; Yin, Jianjun; Durack, Paul J.; et al.<br>OCEAN MODELLING Volume: 78 Pages: 35-89 Published: JUN 2014 | 1 | 11 | 12 | 14 | 2 | 40 | 8.00 |

## 9. Highly Cited paper (first author's alphabetic order)

As of September/October 2017, this highly cited paper received enough citations to place it in the top 1% of the academic field of Geosciences based on a highly cited threshold for the field and publication year.
*Data from Essential Science Indicators*

1. Times Cited: 48
Ablain M, Cazenave A, Larnicol G, Balmaseda M, Cipollini P, Faugere Y, et al. Improved sea level record over the satellite altimetry era (1993-2010) from the Climate Change Initiative project. Ocean Science. 2015;11(1):67-82. doi: 10.5194/os-11-67-2015. PubMed PMID: WOS:000350556600005.

2. Times Cited: 43
Balmaseda MA, Hernandez F, Storto A, Palmer MD, Alves O, Shi L, et al. The Ocean Reanalyses Intercomparison Project (ORA-IP). Journal of Operational Oceanography. 2015;8:S80-S97. doi: 10.1080/1755876x.2015.1022329. PubMed PMID: WOS:000368117600006.

3. Times Cited: 129
Bond NA, Cronin MF, Freeland H, Mantua N. Causes and impacts of the 2014 warm anomaly in the NE Pacific. Geophysical Research Letters. 2015;42(9):3414-20. doi: 10.1002/2015gl063306. PubMed PMID: WOS:000355878300044.

4. Times Cited: 44
Buckley MW, Marshall J. Observations, inferences, and mechanisms of the Atlantic Meridional Overturning Circulation: A review. Reviews of Geophysics. 2016;54(1):5-63. doi: 10.1002/2015rg000493. PubMed PMID: WOS:000374690300001.

5. Times Cited: 84
Cazenave A, Dieng HB, Meyssignac B, von Schuckmann K, Decharme B, Berthier E. The rate of sea-level rise. Nature Climate Change. 2014;4(5):358-61. doi: 10.1038/nclimate2159. PubMed PMID: WOS:000335403500023.

6. Times Cited: 23
Danabasoglu G, Yeager SG, Kim WM, Behrens E, Bentsen M, Bi DH, et al. North Atlantic simulations in Coordinated Ocean-ice Reference Experiments phase II (CORE-II). Part II: Inter-annual to decadal variability. Ocean Modelling. 2016;97:65-90. doi: 10.1016/j.ocemod.2015.11.007. PubMed PMID: WOS:000367556200006.

7. Times Cited: 129
Drobinski P, Ducrocq V, Alpert P, Anagnostou E, Beranger K, Borga M, et al. HYMEX A 10-Year Multidisciplinary Program on the Mediterranean Water Cycle. Bulletin of the American Meteorological Society. 2014;95(7):1063-82. doi: 10.1175/bams-d-12-00242.1. PubMed PMID: WOS:000340981000014.

8. Times Cited: 46
Forget G, Campin JM, Heimbach P, Hill CN, Ponte RM, Wunsch C. ECCO version 4: an integrated framework for non-linear inverse modeling and global ocean state estimation. Geoscientific Model Development. 2015;8(10):3071-104. doi: 10.5194/gmd-8-3071-2015. PubMed PMID: WOS:000364326200006.

9. Times Cited: 50
Kohl A. Evaluation of the GECCO2 ocean synthesis: transports of volume, heat and freshwater in the Atlantic. Quarterly Journal of the Royal Meteorological Society. 2015;141(686):166-81. doi: 10.1002/qj.2347. PubMed PMID: WOS:000349663200014.

10. Times Cited: 20
Liu W, Xie SP, Lu J. Tracking ocean heat uptake during the surface warming hiatus. Nature Communications. 2016;7:9. doi: 10.1038/ncomms10926. PubMed PMID: WOS:000373153800001.

11. Times Cited: 105
MacLachlan C, Arribas A, Peterson KA, Maidens A, Fereday D, Scaife AA, et al. Global Seasonal forecast system version 5 (GloSea5): a high-resolution seasonal forecast system. Quarterly Journal of the Royal Meteorological Society. 2015;141(689):1072-84. doi: 10.1002/qj.2396. PubMed PMID: WOS:000356805700007.

12. Times Cited: 65
McCarthy GD, Smeed DA, Johns WE, Frajka-Williams E, Moat BI, Rayner D, et al. Measuring the Atlantic Meridional Overturning Circulation at 26 degrees N. Progress in Oceanography. 2015;130:91-111. doi: 10.1016/j.pocean.2014.10.006. PubMed PMID: WOS:000349059800007.

13. Times Cited: 38
Nieves V, Willis JK, Patzert WC. Recent hiatus caused by decadal shift in Indo-Pacific heating. Science. 2015;349(6247):532-5. doi: 10.1126/science.aaa4521. PubMed PMID: WOS:000358713300055.

14. Times Cited: 46
Pinardi N, Zavatarelli M, Adani M, Coppini G, Fratianni C, Oddo P, et al. Mediterranean Sea large-scale low-frequency ocean variability and water mass formation rates from 1987 to 2007: A retrospective analysis. Progress in Oceanography. 2015;132:318-32. doi: 10.1016/j.pocean.2013.11.003. PubMed PMID: WOS:000352038700015.

15. Times Cited: 62
Riser SC, Freeland HJ, Roemmich D, Wijffels S, Troisi A, Belbeoch M, et al. Fifteen years of ocean observations with the global Argo array. Nature Climate Change. 2016;6(2):145-53. doi: 10.1038/nclimate2872. PubMed PMID: WOS:000370963400013.

16. Times Cited: 25
Rocha CB, Chereskin TK, Gille ST, Menemenlis D. Mesoscale to Submesoscale Wavenumber Spectra in Drake Passage. Journal of Physical Oceanography. 2016;46(2):601-20. doi: 10.1175/jpo-d-15-0087.1. PubMed PMID: WOS:000372707600004.

17. Times Cited: 99
Roemmich D, Church J, Gilson J, Monselesan D, Sutton P, Wijffels S. Unabated planetary warming and its ocean structure since 2006. Nature Climate Change. 2015;5(3):240-5. doi: 10.1038/nclimate2513. PubMed PMID: WOS:000350327800019.

18. Times Cited: 80
Schmidtko S, Heywood KJ, Thompson AF, Aoki S. Multidecadal warming of Antarctic waters. Science. 2014;346(6214):1227-31. doi: 10.1126/science.1256117. PubMed PMID: WOS:000346189000057.

19. Times Cited: 46
Srokosz MA, Bryden HL. Observing the Atlantic Meridional Overturning Circulation yields a decade of inevitable surprises. Science. 2015;348(6241):6. doi: 10.1126/science.1255575. PubMed PMID: WOS:000356449500041.

20. Times Cited: 72
Trenberth KE, Fasullo JT, Balmaseda MA. Earth's Energy Imbalance. Journal of Climate. 2014;27(9):3129-44. doi: 10.1175/jcli-d-13-00294.1. PubMed PMID: WOS:000337272700004.

21. Times Cited: 41
von Schuckmann K, Palmer MD, Trenberth KE, Cazenave A, Chambers D, Champollion N, et al. An imperative to monitor Earth's energy imbalance. Nature Climate Change. 2016;6(2):138-44. doi: 10.1038/nclimate2876. PubMed PMID: WOS:000370963400012.

22. Times Cited: 88
Waterhouse AF, MacKinnon JA, Nash JD, Alford MH, Kunze E, Simmons HL, et al. Global Patterns of Diapycnal Mixing from Measurements of the Turbulent Dissipation Rate. Journal of Physical Oceanography. 2014;44(7):1854-72. doi: 10.1175/jpo-d-13-0104.1. PubMed PMID: WOS:000339183800010.

23. Times Cited: 64
Zhang ZG, Wang W, Qiu B. Oceanic mass transport by mesoscale eddies. Science. 2014;345(6194):322-4. doi: 10.1126/science.1252418. PubMed PMID: WOS:000339400700050.