# Report for the year 2016 and future activities

**SOLAS PERU**  
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*Part 1:* reporting of activities in the period of January 2016 – December 2016

*Part 2:* reporting on planned activities for 2017 to 2018/19.

## PART 1 - Activities from January 2016 to December 2016

### 1. Scientific highlight

1. **Coastal Upwelling off Perú**
   
   During 2016 IMARPE continue with the project **Coastal Upwelling off Peru: An Integrated study approach** as one of the main research lines of the Climate Change and Oceanography research Direction. 2016 year was also under the influence of El Niño Costero during summer and fall period that was observed in the water masses and a direct impact in oxygenation, pH and nutrients. The main results were presented at the Fourth International Symposium on the Ocean in a High-CO2 World Hobart, Tasmania, Australia, 3–6 May 2016. The results shows the impact of the last El Niño event 2014-2015, 2015-2016 in the variability of the OMZ and pH off Callao and the strong impact in the chemistry and the phytoplankton communities. A strong presence of the nanoplankton community and coccolithophorids with different degrees of calcification appears in a coastal open-ocean gradient.

2. **Acidification and the Peruvian Upwelling system**

   In the frame of the IAEA project, the IPEN Energy institute of Peru and the topic **The Upwelling of Perú How vulnerable it is?** IMARPE has a contract 18007 to develop studies focus in the acidification and the impact in biological communities. In the frame of the contract IAEA two master thesis were finished: 1) **Variabilidad espacial y calcificación de las comunidades de cocolitofóridos en el Sistema de Afloramiento costero frente al callao Perú.** Diana Angélica Alvites Gutiérrez. Cayetano heredia University. This thesis is under collaboration with the CALHIS Project, LOCEAN- CEREGE France.

   ![SOLASmöller](image)
   
2) "Calcification and growth in juvenile of A. purpuratus under low-pH" (Kathy Córdova– UPCH) in collaboration with IMARPE (E. Fernández, A. Aguirre) and LEMAR-IRD (J. Fly) research scientist, LMI DISCOH 2 and support staff from national universities- J. Vitor (UNMSM) and I. Vasquez (UNALM).

3- Modelling approaches for the upwelling oceanographic and ocean-atmosphere coupling
IMARPE and the Instituto Geofísico del Perú IGP continue the efforts to develop different models in order to improve the knowledge about the oceanographic and the coupling between the ocean and atmosphere interaction. An important efforts was associated during 2016 to the El Niño conditions that follow the 2015 Coastal El Niño conditions.

2. Activities/main accomplishments in 2016 (projects, field campaigns, events, model and data intercomparisons, capacity building, international collaborations, contributions to int. assessments such as IPCC, interactions with policy makers or socio-economics circles, etc.)

1- Workshops “ KOSMOS PERU 2017 “AN OMZ MESOCOSM EXPERIMENT”
During 2016 in Kiel, Germany at the GEOMAR institute and in IMARPE take place several workshop In the frame of the project "Future Changes in the ocean upwelling system off Peru, KOSMOS Perú " led by Dr. Ulf Riesebell the German Institute GEOMAR and Michelle Graco from the Instituto del Mar del Peru (IMARPE). This project have the participation of 72 scientist, from Perú, IMARPE, Peruvian universities UPCH, UCSUR, UNI, UNMSM, GEOMAR and many other universities and institutes of several other countries. During 2016 was fix the scientific plan. The experiment will be launch in 2017.

2- LAOCA Latinoamericana NETWORK of Acidification
During 2016 in Lima, Perú take place at IMARPE the first meeting of the LAOCA -Latin American Ocean Acidification network (LAOCA). One of the future activities will be the International Symposium of Acidification at Argentina- November 2017. This symposium will be support by LAOCA, GOA-ON and IAEA.

3- Low Oxygen Network GO2NE
During 2016 IOC- UNESCO network focused on oxygen in open and coastal ocean continue the activities with the participation of IGP and IMARPE.

4- Participation in several international conferences / OSC Open Science Conference 2016, a High-CO2 World realizado en Hobart, Presentación oral. 3 al 6 de Mayo de 2016. Tasmania, AUSTRALIA, CALHIS. Aix en Provence, FRANCIA, Congreso de Ciencias del Mar. Chiclayo, PERU.
Several students and professionals form Perú, IGP, UPCH, IMARPE, UNMSM, UcSUR represent Peruvian research in topics related with the upwelling of Perú.

3. Top 5 publications in 2015 (only PUBLISHED articles) and if any weblinks to models, datasets, products, etc.


**PART 2 - Planned activities from 2016 to 2018/19**

1. **Planned major field studies and collaborative laboratory and modelling studies, national and international (incl. all information possible, dates, locations, teams, work, etc.)**

- The main field study will be the KOSMOS experiment that will take place between January and April 2017, off San Lorenzo Island.
- In the frame of the SFB 754 research cruises off Peru with the Meteor and IMARPE research vessels. 2017.

2. **Events like conferences, workshops, meetings, schools, capacity building etc. (incl. all information possible)**

3. **Funded national and international projects / activities underway (if possible please list in order of importance and indicate to which part(s) of the SOLAS 2015-2025 science plan the activity topics relate – including the themes on ‘SOLAS science and society’ and ‘Geoengineering’)**

- National with international efforts to carry out multidisciplinary research focus in the SOLAS OMZs-EBUEs Mid-Term Strategy Initiative topics
  1. National project of the Upwelling System of Peru- OMZ IMARPE
  2. ASLAEL Project KOSMOS 2017 Perú- GERMANY/ GEOMAR/ OMZ IMARPE
  3. El Niño and the peruvian upwelling two projects. 1) IGP, LEGOS, 2) IMARPE- IRD-UPCH.
  4. IAEA Project- contract- Upwelling and acidification IMARPE, UPCH
  5. LMI DISCOH IRD- Upwelling, modelling- several partners from France LOCEAN, CEREGE, TOULOUSE and IMARPE.

4. **Plans / ideas for future projects, programmes, proposals national or international etc. (please precise to which funding agencies and a timing for submission is any)**

5. **Engagements with other international projects, organisations, programmes etc.**

   1. ASLAEL Project KOSMOS 2017 Perú- GERMANY/ GEOMAR/ OMZ IMARPE
   2. El Niño and the peruvian upwelling two projects. 1) IGP, LEGOS, 2) IMARPE- IRD-UPCH.
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**Comments**