

## Report for the year 2015 and future activities

**SOLAS your country**

**compiled by:** \_\_\_\_\_

Please note that this report has two parts!

**Part 1:** reporting of activities in the period of January 2015 – December 2015

**Part 2:** reporting on planned activities for 2016 to 2018/19.

The information provided will be used for reporting, fundraising, networking and strategic development. In particular, **in 2016 SOLAS will develop its Implementation Plan, which will be largely based on the information from part 2 of the national reports, as well as input from international SOLAS initiatives and activities.** This info will be crucial in order to draft a realistic Implementation Plan representative of SOLAS, internationally.

**IMPORTANT:** May we remind you that this report should reflect the efforts of the SOLAS community in the **entire country** you are representing (all universities, institutes, lab, units, groups)!

### PART 1 - Activities from January 2015 to December 2015

#### 1. Scientific highlight

Describe one scientific highlight with a title, text (max. 200 words), a figure with legend and full references. Please focus on a result that would not have happened without SOLAS, and we are most interested in international collaboration.

Example to be deleted:

#### Glyoxal and methyl glyoxal over the Southern Hemisphere oceans

Dicarbonyls glyoxal and methylglyoxal have been measured in clean marine air over the temperate Southern Hemisphere oceans, both during the SOLAS-endorsed Surface Ocean Aerosol Production (SOAP) Voyage in the South West Pacific, and at Cape Grim Baseline Station [1]. Both are present in non-negligible mixing ratios, even in pristine marine air, suggesting the likely widespread contribution of these gases to secondary organic aerosol production over the oceans. This is the first study to measure a range of dicarbonyl precursors (VOCs), including isoprene and monoterpenes over the ocean in parallel with the dicarbonyls, allowing the expected yield of dicarbonyls to be determined. At most only 29% of the observed glyoxal and methylglyoxal can be explained from the measured precursors; this supports suggestions from other studies that there must be another major source contributing to formation of the glyoxal, and we show for the first time that another source must also be contributing to methylglyoxal formation.

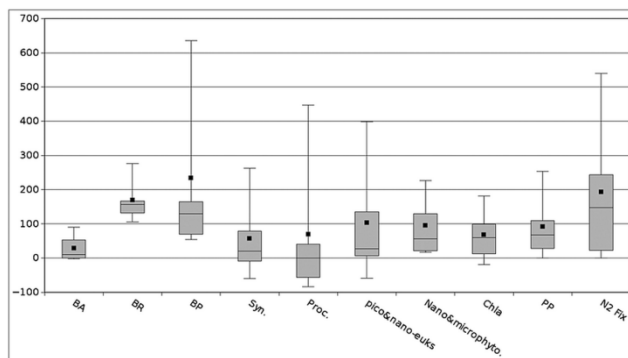


Figure: Seasonal glyoxal VCDs retrieved from GOME-2 and calculated from surface based observations at Cape Grim and Chatham Rise.

In situ glyoxal observations were converted to vertical column densities (VCDs) and show that GOME-2 satellite VCDs are significantly higher than those calculated from in situ observations. This discrepancy may be due to the incorrect assumption that all glyoxal observed by satellite is within the boundary layer, or may be due to challenges retrieving low VCDs of glyoxal over the

oceans due to interferences by liquid water absorption, or use of an inappropriate normalisation reference value in the retrieval algorithm. This study provides much needed data to verify the presence of these short lived gases over the remote ocean and provide further evidence of an as yet unidentified source of both glyoxal and also methylglyoxal over the remote oceans.

Lawson, S.J., Selleck, P.W., Galbally, I.E., Keywood, M.D., Harvey, M.J., Lerot, C., Helmig, D. and Ristovski, Z., Seasonal in situ observations of glyoxal and methylglyoxal over the temperate oceans of the Southern Hemisphere Atmos. Chem. Phys. Discuss., 14, 21659–21708, 2014

**2. Activities/main accomplishments in 2015 (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.)**

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

*For journal articles please follow the proposed format:*

*Author list (surname and initials, one space but no full stops between initials), year of publication, article title, full title of journal (italics), volume, page numbers, DOI.*

## **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.)**

SCOR WG#143: N2O/CH4 inter-comparison cruise, Baltic Sea, Oct. 2016 (PI: G. Rehder, IOW)

R/V Sonne cruise to the Arabian Sea, early 2018, PI: Birgit Gaye, U Hamburg

R/V Sonne cruise (GEOTRACES) to the Southern Indian Ocean, 2017/2018, PI: Eric Achterberg, GEOMAR

R/V Meteor cruise (SFB754) to the Peru upwelling, June/July 2017; PIs: H. Bange, C. Löscher, GEOMAR

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

Boknis Eck Time-Series Station: 60<sup>th</sup> Anniversary, Workshop, Kiel, Spring 2017, PI: HBange, GEOMAR)

**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’)**

- SFB754 'Climate-biogeochemical interactions in tropical oceans', Phase III, [www.sfb754.de](http://www.sfb754.de) -> SOLAS Integrated Topic Upwelling
- AlantOS, Optimising and Enhancing the Integrated Atlantic Ocean Observing Systems, [www.atlantos-h2020.eu](http://www.atlantos-h2020.eu) -> SOLAS Theme 1
- ICOS-D, German Integrated Carbon Observation System, <http://www.icos-infrastruktur.de/index.php?id=7868> -> SOLAS Theme 1

**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)**

- Integrated German Indian Ocean Study, proposal in preparation for BMBF or DFG, submission 2016/17.

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

**Projects**

- BIOACID
- InGOS
- SCOR WGs #141, #142, and #143
- Boknis Eck Time Series Station
- CVOO/CVAO
- SFB754
- and many more

**Partner Institutions**

- INDP, Mindelo, Cape Verde
- IMARPE, Callao, Peru
- Ocean University China, Qingdao, China
- and many more

**International Organisations**

- IPCC
- and many more

**Comments**