

## Report for the year 2016 and future activities

**SOLAS**  
*compiled by:*

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*This report has two parts:*

- **Part 1:** reporting of activities in the period of January 2016 – Jan-Feb 2017
- **Part 2:** reporting on planned activities for 2017/2018 and 2019.

*The information provided will be used for reporting, fundraising, networking, strategic development and updating of the live web-based implementation plan.*

**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, cities)!

### PART 1 - Activities from January 2016 to Jan/Feb 2017

#### 1. Scientific highlight

For three land based stations (Longyearbyen, Ny-Alesund, Hornsund) and the Fram Strait area sunphotometric data have been archived. These data were collected during the IO PAN routine Arctic studies, from the AERONET and the MAN projects and from the Ny-Alesund based studies. To enhance the analyses also meteo, satellite and back-trajectories have been analyzed. Very initial data analyses allowed to provide some statistical results, which are presented in Table 1. The extreme values (minimum and maximum) as well as the average values indicate the changes in aerosol optical properties with time and location.

The analyzed aerosol data also show that the AOD values at 500 nm, slightly increase over a period between 2000 and 2012. Some years (2005, 2006, 2008 and 2011) show extremely high AOD values. This is concerned with certain atmospheric events, such as e.g. Arctic Haze, or biomass burning pollution transported to the study area from remote regions.

Table 1. Introductory statistics for AOD at 500 nm and the Ångström Parameter for a period between 2000 and 2012 at three Svalbard stations (LY – Longyearbyen).

	Rok	AOD [500nm]				Ångström exponent			
		Minimum	Maximum	Mean ± StD	Variance	Minimum	Maximum	Mean ± StD	Variance
Hornsund	2005	0.023	0.319	0.073±0.042	0.002	0.370	1.793	1.148±0.277	0.077
	2006	0.022	0.522	0.111±0.099	0.010	0.208	1.951	1.326±0.332	0.110
	2007	0.037	0.256	0.089±0.032	0.001	0.300	1.894	1.269±0.387	0.150
	2008	0.023	0.574	0.102±0.055	0.003	0.211	1.943	1.456±0.253	0.064
	2009	0.041	0.285	0.104±0.039	0.002	0.418	1.806	1.378±0.245	0.060
	2010	0.049	0.305	0.095±0.035	0.001	0.499	1.877	1.234±0.338	0.115
	2011	0.036	0.240	0.087±0.030	0.001	0.235	1.977	1.371±0.419	0.176
	2012	0.025	0.209	0.082±0.032	0.001	0.391	2.105	1.561±0.271	0.073
LYR	2003	0.029	0.365	0.095±0.060	0.004	0.447	2.077	1.609±0.261	0.068

2004	0.024	0.114	0.048±0.013	0.000	0.491	1.839	1.357±0.251	0.063
2000	0.073	0.195	0.110±0.025	0.001	0.879	1.616	1.317±0.156	0.024
2001	0.053	0.110	0.077±0.016	0.000	0.206	1.432	1.093±0.148	0.022
2002	0.037	0.115	0.066±0.015	0.000	0.619	2.080	1.399±0.279	0.078
2003	0.044	0.139	0.067±0.015	0.000	-0.185	2.164	0.755±0.519	0.269
2004	0.027	0.245	0.088±0.046	0.002	-0.192	2.318	1.609±0.485	0.235
2005	0.016	0.633	0.106±0.093	0.009	0.313	2.317	1.334±0.369	0.136
2006	0.017	0.264	0.062±0.035	0.001	0.535	1.802	1.493±0.189	0.036
2007	0.028	0.189	0.075±0.032	0.001	1.025	1.937	1.580±0.164	0.027
2008	0.025	0.183	0.078±0.038	0.001	1.046	1.875	1.536±0.153	0.023
2009	0.035	0.208	0.089±0.032	0.001	0.773	1.995	1.360±0.243	0.059
2010	0.006	0.126	0.049±0.021	0.000	-0.163	2.237	1.382±0.319	0.102
2011	0.035	0.162	0.067±0.020	0.000	1.065	2.234	1.835±0.147	0.022

## 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. Membership in the Board of Directors of the Centre for Polar Studies.
2. Organization of an international symposium called the Sopot Forum for Young Scientists.
3. Co-ordination of the public consultations within the Sea for Society project.
4. Organization and running of a number of meetings with various stakeholders within the 7 FP project Sea for Society.
5. Leaders in the POLAND-AOD network.
6. Polish coordination in the NASA Maritime Aerosol Network.
7. Membership in the Scientific Council of the Climate Forum – Science on Climate.
8. Coordination of the Sopot Association for the Advanced Sciences activities.
9. Organization of a number of public events, promoting science.
10. PIs in the iAREA Polish-Norwegian project.
11. ESA OceanFlux Greenhouse Gases Evolution project - participation.
12. Co-organizing of a SOLAS related meeting (membership of the scientific committee and session chairing).

## 3. Top 5 publications in 2016 (only PUBLISHED articles) and if any, weblinks to models, datasets, products, etc.

1. Markowicz K, Chilinski M, Lisok J, Zawadzka O, Janicka L, Stachlewska I, Makuch P, Pakszys P, Rozwadowska A, Petelski T, Zielinski T, Posyniak M, Pietruczuk A, Szkop A, Westphal A, 2016, Study of aerosol optical properties during long-range transport of biomass burning from Canada to Central Europe in July 2013; *Journal of Aerosol Science*; Vol. 101, 156 -173; <http://dx.doi.org/10.1016/j.jaerosci.2016.08.006>; (5 year IF=2.627).

2. Lisok J, Markowicz K, Ritter Ch, Neuber R, Makuch P, Pakszys P, Markuszewski P, Petelski T, Rozwadowska A, Chilinski M, Stachlewska I, Becagli S, Traversi R, Udisti R, Struzewska J, Kaminski J, Jefimow M, Zielinski T, 2016, 2014 iAREA campaign on aerosol in Spitsbergen Part 1: Study of physical and chemical properties; *Atmospheric Environment*, (140), pp. 150-166 . doi: 10.1016/j.atmosenv.2016.05.051 J (5 year IF=3.841).
3. Ritter Ch, Neuber R, Markowicz K, Stachlewska I, Lisok J, Makuch P, Pakszys P, Markuszewski P, Rozwadowska A, Petelski T, Zielinski T, Becagli S, Traversi R, Udisti R, Gausa M, 2016, 2014 iAREA campaign on aerosol in Spitsbergen – Part 2: Optical properties from Raman-lidar and in-situ observations at Ny-Ålesund; *Atmospheric Environment*; vol. 141; 1-19; <http://dx.doi.org/10.1016/j.atmosenv.2016.05.053>; (5 year IF=3.841).
4. Wróbel I, Piskozub J., 2016, Effect of gas-transfer velocity parameterization choice on air-sea CO<sub>2</sub> fluxes in the North Atlantic Ocean and the European Arctic, *Ocean Science*, 12 (5), 1091-1103, doi:10.5194/os-12-1091-2016.
5. James R.H., Bousquet P., Bussman I., Haeckel M., Kipfer R., Leifer I., Niemann H., Ostrovsky I., Piskozub J., Rehder G., Treude T., Vielstädte L., Greinert J., 2016, Effects of climate change on methane emissions from seafloor sediments in the Arctic Ocean: A review, *Limnology and Oceanography*, 61(S1), S283-S299, doi:10.1002/lno.10307 (IF = 3.660; IF5 = 4.280)

*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.*

**Did you engage any stakeholders/societal partners/external research users in order to co-produce knowledge in 2016? If yes, who? How did you engage?**

Organization and running of a number of meetings with various stakeholders within the 7 FP project Sea for Society and our own dissemination activities. The groups of stakeholders included participants from general public to school kids. We run workshops and science fairs, open lectures and projects with kids related to marine environment.

**PART 2 - Planned activities from 2017/2018 and 2019**

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

1. Ny-Alesund Flagship programs, spring 2017 international campaign.
2. Summer Arctic campaign using the r/v Oceania and in cooperation with an international team of researchers, including the r/v Polarstern.
3. NASA AERONET, ongoing activities.
4. POLAND-AOD, ongoing activities.

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

1. Organization of an international conference for young scientists entitled: Where the World is Heading (26 May 2017).
2. Continuation of work within the POLAND-AOD network.

3. A number of other activities are planned.

**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 and Organisation (downloadable from the SOLAS website) the activity topics relate – including the core themes and the cross cutting ones)**

None at the moment. A number of projects to be submitted during 2017.

**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)**

A number of projects to be submitted during 2017. We will seek funding on national and international levels.

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

1. NASA AERONET (agreement until 2019).
2. Ny-Alesund Flagship programs, spring 2016 international campaign.
3. Bilateral agreement with the Alfred Wegener Institute (until September 2016, to be extended).

**Comments**