

## **IASOA Ozone Working Group**

**March 16, 2016**

**Attendees:** Sara Crepinsek, Henrik Skov, Markus Fiebig, Audra McClure, Irina Petropavlovskikh, Detlev Helmig, David Tarasick, Sverre Solberg, Henk Eskes, Germar Bernard, Kim Strong, Taneil Uttal

**Introduction** of group members

**Presentation from Henk Eskes** – CAMS project: Copernicus Atmosphere Monitoring Service, implemented by ECMWF, overview of CAMS website and services, modeling/re-analyses/forecasts, global and regional services of air quality, CAMS product catalogue, example of Zeppelin and Alaskan aerosol data sets during wildfire smoke event, CAMS84 validation project, time scales of validation data (real time, near real time, monthly, yearly), goal of project is to use any/all data sets from all sources, i.e. large data sets, campaigns, individual/smaller data sets, goal to present real-time data

Eskes - 1-month cut-off for measurements should be used in our validation reports for the real-time CAMS service products. Perhaps good to highlight this 1-month timescale, which is quite specific for CAMS. Also, we provide automated verification plots, with a cut-off of a few days after measurement

Eskes - Our preference is to receive datasets together through well-established channels like the WMO data centers. We do download data from several sources, like the WMO data centers, NDACC, NOAA, AERONET, ACTRIS, EBAS/EMEP, including Arctic data. If (real-time) data is not available in this way, as second option is to directly contact the groups to see what is possible. As mentioned by Henrik Skov, AU could serve as a point to collect such data (without distributing it).

Petropavlovskikh – are data sets currently being downloaded from WDCGG or directly from station?

Eskes – goal is to use both station data and archived data, ideally would want regulatory data, CAMS is extending aerosol scope to go beyond ozone, greenhouse gases, NO<sub>2</sub>

Bernard – there are few stations in Europe with NO<sub>2</sub> data, which is unfortunate

Eskes – need to extend NO<sub>2</sub> instrumentation

Petropavlovskikh – interested in surface or column data, how do surface data contribute to models

Eskes – CAMS is interested in both for well-rounded comparisons, surface data is used for validation of model outputs, global assimilation used from satellite data – available within 3-hour time period from collection

Fiebig – as a user, when data becomes available after one day it is still used for both verification and the validation reports

Eskes – CAMS has contracts with data sources to provide data within 3-hour period, relevant mainly when data is actually assimilated, which is not the case for the surface observations, agrees that we could focus on reactive gases

**Presentation from Henrik Skov** – CAMS84 project: Arctic representation by CAMS, validation of the global model products in the Arctic, has access to surface ozone measurements from Barrow and Summit (ESRL-GMD) as well as ozone sonde measurements from NILU, WOUDC, and SHADOZ data bases, Arctic Validation would like to occur in near real time, example of Villum Greenland data, request for data from the IASOA site: priority surface measurements of o<sub>3</sub>, no<sub>2</sub>, co, ch<sub>4</sub>, pm<sub>2.5</sub>, pm<sub>10</sub>, will collect

the available data at Aarhus University where we will make the data analysis, need to develop terms and uses of data sets

Petropavlovskikh – interested in real time data

Skov – near real time data is preferred, but will take as quickly as can get the data

Petropavlovskikh – difference in model outputs

Skov – one is model and one is data assimilation

Tarasick – was ozone data was assimilated from surface ozone data? No surface data in the assimilation

Skov – comparison of model run was to surface measurements, halogen chemistry/ozone depletion events are not well captured in the model, priority of CAMS to include these processes and improve the model

Detlev – agrees that halogen chemistry/ozone depletion events are not well known in the Arctic and is glad to see that is a priority among community, how will climate change affect these depletion events since it is related to sea-ice cover which is changing drastically, we are limited by scarcity of measurements of these ozone depletion events → Should keep an eye on this topic

Tarasick – increasing frequency of ozone depletion events at St.Nord, but Alert and Eureka to not show trends likely because they are shorter records

McClure – increasing frequency of ozone depletion events at Barrow

?? - Mercury, ozone, bromine experiments to show relationship, can't reconstruct findings from campaign at other sites which means something is changing

Uttal – very interesting to hear about these ozone depletion events and should be working toward as a research topic... is there someone who would like to write a thesis statement based on this conversation? Crepinsek and McClure would likely be interested in looking at these trends and rates and trajectory plots to compare between stations

Bernard – should frame larger than ozone depletion events to see what they represent from these high-resolution, precise ozone measurements

Crepinsek – we should pick up the discussion of ozone depletion events at our next meeting to give it more time, discussion, and attention to defining our science question

**Presentation from Sverre Solberg** – EBAS archive description, responsibility for o3, noX, noY, soX, VOC, *wants all data providers to re-submit their data sets to EBAS/NILU from WDCGG*, existing data in EBAS includes o3, noX, noY, soX, VOC, navigating the EBAS/NILU data website, how to complete submission of data to website, metadata needed for submission

Irina – can we include several species of data into one file so re-submission is not as time consuming, will discuss over email with Sverre about this possibility

Detlev – data archive for reactive gases was working very well with Japanese data archive, is un-realistic to expect people to re-submit their data sets and we will lose data this way, NILU/EBAS should try to retrieve data from already existing archives

Solberg – will discuss this concern with his partners at NILU/EBAS

Fiebig – some data sets or metadata are not included at other databases, so we should still continue this project

Uttal – suggest that we take this archiving issue to the next meeting, but offline we will show IASOA portal

Uttal/Crepinsek – demonstration of ozone data-at-a-glance IASOA page

Action Items:

- Discuss the topic of ozone depletion events at next meeting: ALL
- Everyone send their notes on ozone depletion events to Sara: ALL
- Determine young scientists who could lead this study: Crepinsek, McClure
- Crepinsek will give brief demonstration of the IASOA portal