IASOA Transport Working Group
December 14, 2016

Attendees: Sara Crepinsek, Alexander Makshtas, Thomas Haiden, Timo Vihma, Audra McClure, Taneil Uttal, Jeff Key, Sangeeta Sharma, Joseph Barsugli, Elena (FMI), Jim Overland

Introduction – roll call, introduction of Thomas Haiden as co-chair

Presentation on Vihma publication: Application of IASOA circumpolar observations in studies of atmospheric transports into and out of the central Arctic – submitted by invitation to journal “Arctic” in November 2016, Arctic amplification of climate warming, seasonal time series, sea ice decline – thickness reduced by roughly 50% since 1980, in late summer and autumn extent reduced by roughly 40%, changes in terrestrial Arctic and boreal regions, June snow cover loss twice as fast as loss of summer sea ice, increases in precipitation, net precipitation, and river discharge, contribution of mid- and lower- latitudes to Arctic warming, recent warming in north- eastern Canada and Greenland related to anomalous Rossby wave-train activity originating from a specific SST pattern in the tropical Pacific, recent extremes in the Arctic: teleconnections from the Atlantic, warming over Eurasian high-latitude land surfaces, el nino warming over southwestern Alaska and British Columbia, clouds and increased downwelling longwave radiation, Arctic effects on mid latitudes, important features of large-scale atmospheric dynamics: polar front jet stream, planetary waves, high-pressure blockings, transient cyclones, polar vortex description and summarization of process, northern hemisphere cryosphere changes, arctic amplification, global climate change, changes in storm track, jet stream, etc., overview of Overland et al. (2016) Nature Climate Change diagram, all of the above calls for better quantitative understanding on the atmospheric transports of heat, momentum, potential energy, moisture, other greenhouse gases, clouds, and aerosols from lower latitudes to the Arctic and vice versa, impact of transports, overview of IASOA observatories, need to develop usable products and analysis tools to complete several important tasks: to compare point observations against grid-averaged model or satellite products, to compare obs and model/satellite products with different temporal resolution, to compare different variables observed and modelled, to standardize observations products across the network of ten stations, some tools already exist, ground truth for remote sensing observations – main value, IASOA sites are an extremely valuable and under-utilized resource for satellite validation, evaluation of atmospheric models and research on regional transports – so far mostly done on the basis of other data sets, challenges in models and reanalysis, added value of IASOA data compared to radiosonde sounding data: profiles of cloud water and ice content and aerosols, select methods to obtain more accurate transports, evaluation of reanalysis, weather and climate models, and satellite remote sensing products with respect to surface variables, to estimate budgets, evaluation of surface fluxes is vital and complements horizontal transports, comparison of related variables to better understand processes, interesting opportunity: meridional air temperature gradient is growing at the Arctic coastal zone in summer as land is warming much faster than the sea – what will be the effects?, linkages between IASOA and other regional and global initiatives, future perspectives: present observations to serve numerous valuable studies on regional processes and transports, concrete work plan needed, further advance via more observations, consider the priority of actions taking into account the expected advances in satellite remote sensing, other in-situ observations, and numerical models and data assimilation systems, and also
better integration with studies on Arctic hydrology, glaciology, oceanography as well as terrestrial and marine ecosystem research

**Discussion/update on YOPP verification task team activities** – team: Barbara Casati (EC), Thomas Haiden (ECMWF), Greg Smith (EC), Helge Gossling (AWI), Stella Melo (EC), YOPP verification projects: P1) Quantify added value of enhanced observations in data assimilation, prediction, verification, P2) Quantify added value of coupled predictions systems, P3) Analyse skill of sea-ice prediction, P4) Determine forecast skill advances post-YOPP vs pre-YOPP for atmospheric and sea-ice parameters, P5) Linkages – does improved polar prediction lead to improved mid-latitude prediction?, YOPP verification web page will be set up soon – more details, parameters table, verification links, etc., can reach out to task team by contacting Barbara or Thomas

Overview of IASOA Extracting Monthly Arctic Timeseries tab on the IASOA webpage – Uttal/Crepinsek will work on this page, will add observations to this page instead of only model outputs, open to suggestions from group as to what can add to the page, adding more model datasets, adding longitude and latitude to page, Crepinsek to fix link to NSIDC page on Extracting Satellite Monthly Arctic Timeseries, add daily values also with monthly values and even 6-hourly values

**Action Items:**
- How can IASOA contribute to Vihma post-publication (Vihma)
- YOPP verification webpage set up (Haiden)
- Figure out presenter for next IASOA meeting on Jan.25 (Vihma, Haiden, Crepinsek)
- Those interested in YOPP task team should contact Thomas Haiden
- Expand on IASOA Extracting Monthly Arctic Timeseries (Uttal, Crepinsek)
- Continue discussions via email (ALL)