

## IASOA Flux Working Group

March 30, 2016

**Attendees:** Sara Crepinsek, Sandy Starkweather, Glen Lesins, Andrey Grachev, Dave Billesbach, Gijs de Boer, Taneil Uttal, Dave Cook (phoned in from Argonne Labs)

### Introduction of group members

*Overview from Starkweather of Flux Organizing Committee meeting at Arctic Science Summit Week at Fairbanks* – advancing integrated, cross-cutting practices for Arctic flux observations, members participating in the international organizing committee – most people are coming from an observational background, the workshop was a scoping meeting to clarify themes in group, in-depth look of each committee member's main topic/area of study, description of committee members regional site experience in the Arctic, discussion of improved practices for site characterization, seasonal and long term changes in the landscape, identifying most important measurement types, Elyn Humpfrys question of what kind of accompanying process studies would help, Taneil Uttals slide of the multiple measurements needed to capture Arctic atmosphere-surface energy balance variables, Luca slides suggest need to understand carbon fluxes and other gases, Eugenie slides showing zero curtain affect in surface fluxes and ecosystems, Lori Bruhwiler slides of global methane budget and needs of modelers, overall thinking about the system as a whole, closure experiment, energy budget closure study, links with sub surface observations – soil temp, soil type, soil moisture, etc., modeling-observation interactions, what does the modeling community need from the observation community, possible ways forward – increasing grid resolution in models at high latitudes, scaling issues with modeling sensitivity, models aren't representing some properties correctly, how can observations be ingested to help, Andrey Grachev's slides on Gold Files for fluxes necessary to close surface energy budget, Kumpula Campus, Helsinki has volunteered to host workshop – details of funding/budgeting needed to host meeting, or could host workshop at Finnish station

There are lateral and horizontal and turbulent fluxes of CO<sub>2</sub>/methane in Tiksi that we can contribute, and could bring in data examples at next workshop/meeting

Data management topic was not discussed at workshop/organization committee, hopefully this could be a standalone topic at the next workshop. Data quality was not discussed as much, more focus on missing data sets in the overall inventory

Be aware not head off into a direction that already exists, would be important to bring in representative from AmeriFlux and ICOS to get cross-compatibility between data set archives, frameworks already exist so we should take advantage of this

Strong support for integrating ARM sites into high Arctic sites, ARM wants to be involved with Gold File analysis

Goal of this group is to provide answers to major flux community questions

Reviewing annual goals - would be useful to consider possibility of collaboration paper – something highly focused, idea of comparison of flux measurements at different sites in the high arctic (instrumented with sonics/licors) with seasonal averages to see variability (Cherskii, Tiksi, Sondankyla, Barrow)

Site homogeneity could be interesting to look into since sites can vary so much within a few kilometers, but should not do this yet, we should focus on simple flux climatology paper (Barrow could be looked at in the future) – to give an overview of flux in the Arctic

Mention of NASA ABOVE project would be interesting to look into also, along with PEAK

Outside users often need ancillary data along with our flux measurements. We need to identify and make available these data

The issues was raised of the frequency needed to properly characterize the seasonal evolution of the site conditions around the flux towers

There was talk of the importance of measurements of soil conditions (as part of the ancillary data issue) and to understand the zero curtain effect with the permafrost

Upscaling issues were raised again as one of the biggest worries that modelers have in using our flux measurements

**Action Items:**

- Lesins to begin leading paper (other participants: Uttal, Crepinsek, Grachev, deBoer, Euskirchen)