

IASOA Radiation Working Group

March 23, 2016

Attendees: Sara Crepinsek, Sandy Starkweather, Chris Cox, Nathaniel Miller, Taneil Uttal, Jeff Key, Aaron Letterly, Gijs deBoer, Allison McComiskey, Ola Persson, Bob Stone, Thomas Haiden, Von Walden, Janet Intrieri, Elena Konopleva

Introduction of group members

Presentation from Aaron Letterly and Jeff Key – *The influence of winter cloud on summer sea ice in the Arctic, 1983-2013*, highlights of 2007 ice changes – cloud cover anomaly increased surface radiation, led to changes in sea ice later on, climatological relationship, winter cloud cover influences Sept sea ice amount, differences between models

Discussion

Known biases in reanalysis fields for clouds and radiation, from comparison with *in situ* at various sites

- MERRA and ERA-Interim don't do very good in producing super cooled clouds, could be that forcing is less than what could actually be there. For example, during comparison of SHEBA data, also see these differences w/ less cloud forcing in reanalysis than is actually observed
- Oliktok Point shows discrepancies seasonally, ERA-Interim over does radiation where MERRA2 gets closer. All products from looking at Oliktok Point generally show too warm of values near the surface.
- MERRA and ERA-Interim do poorly over clear skies, so could be biased warm
- I is useful to include the satellite data to help with reanalysis, e.g. in this study MODIS and CALIPSO helped establish that the clouds were in the right place.

Related to the spatial variability found in this study

- Something interesting is happening in the Eastern Siberian Sea, that is not necessarily seen in other places in the Arctic; winter time cloud anomalies should be taken into account in these areas.
- Thinking about the MOSAIC project overlaps with eastern Siberian sea study that was presented, could make a case for partnership to describe spatial variability in the Arctic to get a better picture of the entire Arctic and not just one “hot-spot”
- Missing spatial variability measurements across the Arctic, should utilize buoy data and others
- GMD Radiation group is currently working on instrumentation for buoys

Related to broader processes contributing to variability

- in SHEBA study whenever liquid water clouds come in, a few days later see impact in sea ice growth in the bottom, not a clean one-to-one link
- marginal ice zone are generally difficult, but if could fill in some information from east Siberian sea on thickness then that would contribute greatly to understanding, there does seem to be a part where we lose sea ice in one section but not in another (looking at presentation graph), spatial variability and thickness are important

– better ice thickness fields not well known that can be provided from satellite data that modelers could be looking into, comparing products from satellites to those from models – future publication coming soon

Key will pass around publication when it comes out to give people a good idea of where the satellite community is right now

Action Items:

- Haiden talk rescheduled for next time
- Walden could give overview of research at next meeting
- deBoer to talk about surface validation at Oliktok Point at next meeting
- Key to send around publication when it comes out next week