IASOA Radiation Working Group

November 30, 2016

Attendees: Sara Crepinsek, Chris Cox, Emiel Hall, Jim Wendell, Mark Serreze, Allison McComiskey, Taneil Uttal, Bob Stone, Gijs de Boer, Von Walden, Vasily Kustov, Alexander Makshtas

Introduction of group members

Presentation on Arctic Radiometer Modifications – independent study for CU geography department, goals: investigate previous experiment, analyze mitigation strategies in new experiment, determine what changes should be made to instruments for future research installations to mitigate rime on radiometer domes, overview of types of radiometers, description of Alert station evidence and trip visit, rime is a large issue in the Arctic, investigated an experimental radiometer onsite at Alert that had a modified dome and base plate, didn’t seem to keep rime off of dome and appeared to impact measurements negatively, overview of previous Storm Peak experiment conducted by Rob Albee, experiment had too many modifications per instrument, no standard, not calibrated, no documentation of mitigation strategies, development of new experiment using six radiometers from Storm Peak, pared down the radiometers so that there is only one modification per radiometer for the new experiment, instruments were calibrated before experiment, ran next to GMD standard, tested aspiration, heat and housing modifications, assessed how IR loss relationship between the PIR and PSP instruments are impacted when modifications are in place, aspiration has good relationship as long as same aspiration and housing are intact on both PIR and PSP instruments, IR loss relationship falls apart as soon as modifications are not applied to both the PIR and PSP instruments, the modified housings and base plate from the Storm Peak experiment negatively impact the measurement when there is no aspiration, therefore if using these modified domes you must aspirate them heavily, heat test showed to influence measurement by 5-10 W/m² at night, during snow event during the new experiment none of the radiometer ran or housing mitigation designs were able to keep snow off of the dome, future recommendations will be tested at Cold Climate Issues Working Group “bake off”

Action Items:

- Determine agenda for CCIWG “bake-off” (Cox, Crepinsek)