TFS EDC's Baseline Climate Monitoring Program

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Collaborators: Amy Jacobs, Greta Myerchin-Tape, Bob Busey, Forest Kirst, Konosuke Sugiura, and TFS Staff (thanks!)

Goals of the Meteorological Station Management Team

F. Kirst

- Working to deliver the best available data to the users, in a reasonable amount of time
- Working to maintain the consistency of the instrument record at the site
- Working to follow best practices in the field
- Working to evaluate and improve data management, particularly metadata

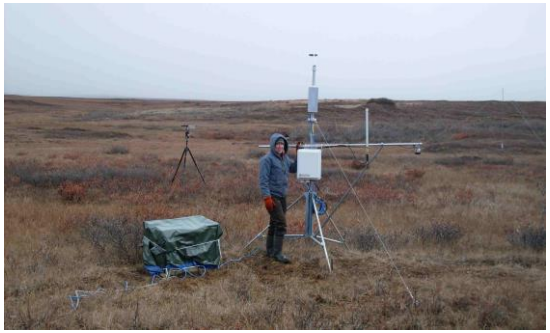
Ways to Access Data

- TFS website: Current Conditions graphs and tables (15 days)
- Longspur: ftp access to raw data (w.y.s.i.w.y.g.)
- Via email: raw .xls spreadsheet on request at end of field season
- TFS website: SQL searchable database after first level QA/QC
- LTER website: .xls and .csv files available after first level QA/QC
- ALCC website: SQL searchable database with all regional data, after first level QA/QC

Issues and concerns

- Little sensor redundancy at this time
- Some inconsistency with sensor type/location over time
- Had impact on ability to see climate trends at site
- Sensor failures hard to diagnose without redundancy
- Camp development impacting climate record ?
- Spatial Variability unknown
- Precipitation particularly unconstrained
- Limited capacity for new sensors
- Tower itself is rusting, may need replacement
- Loss of funding for valuable snow surveys in Imnavait Basin
- Improve communication with the data users

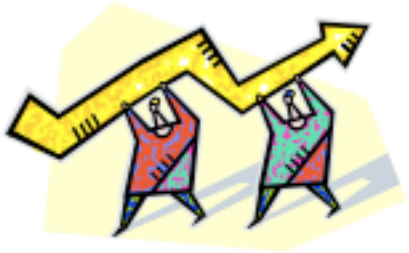
Recent Progress



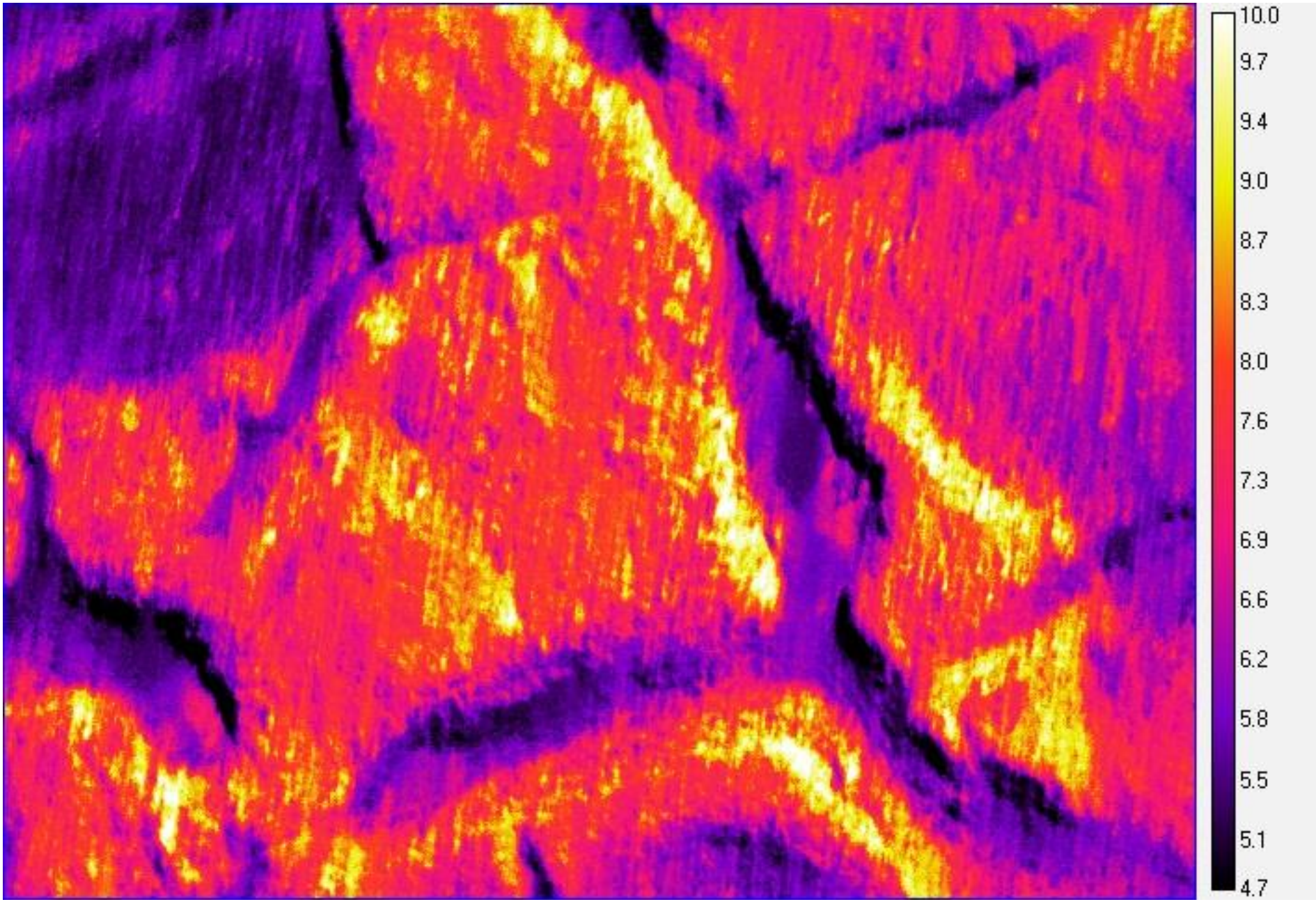
F. Kirst

- Auxiliary ‘snow research station’ installed 2011
- ‘Strategic Plan for Long-term Snow Monitoring in and around Toolik Field Station and Imnavait Basin’ written in Feb 2012
- Planned tower upgrades in Sept 2012 will add capacity and help sustain long-term measurements
- Upgrades to website and database will help improve communication with the data users
- Completion of ‘Climate’ chapter of Toolik monograph provides a better understanding of climate records in the region

Future Vision



- Data Integration (historical physical measurements in and around TFS)
- Development of Value-Added Products such as regional gridded temperature and precip fields
- Synthesis with imagery and distributed datasets
- Recent collections include airborne RGB photography with resolution of 4 cm or greater and corresponding thermal infrared (IR)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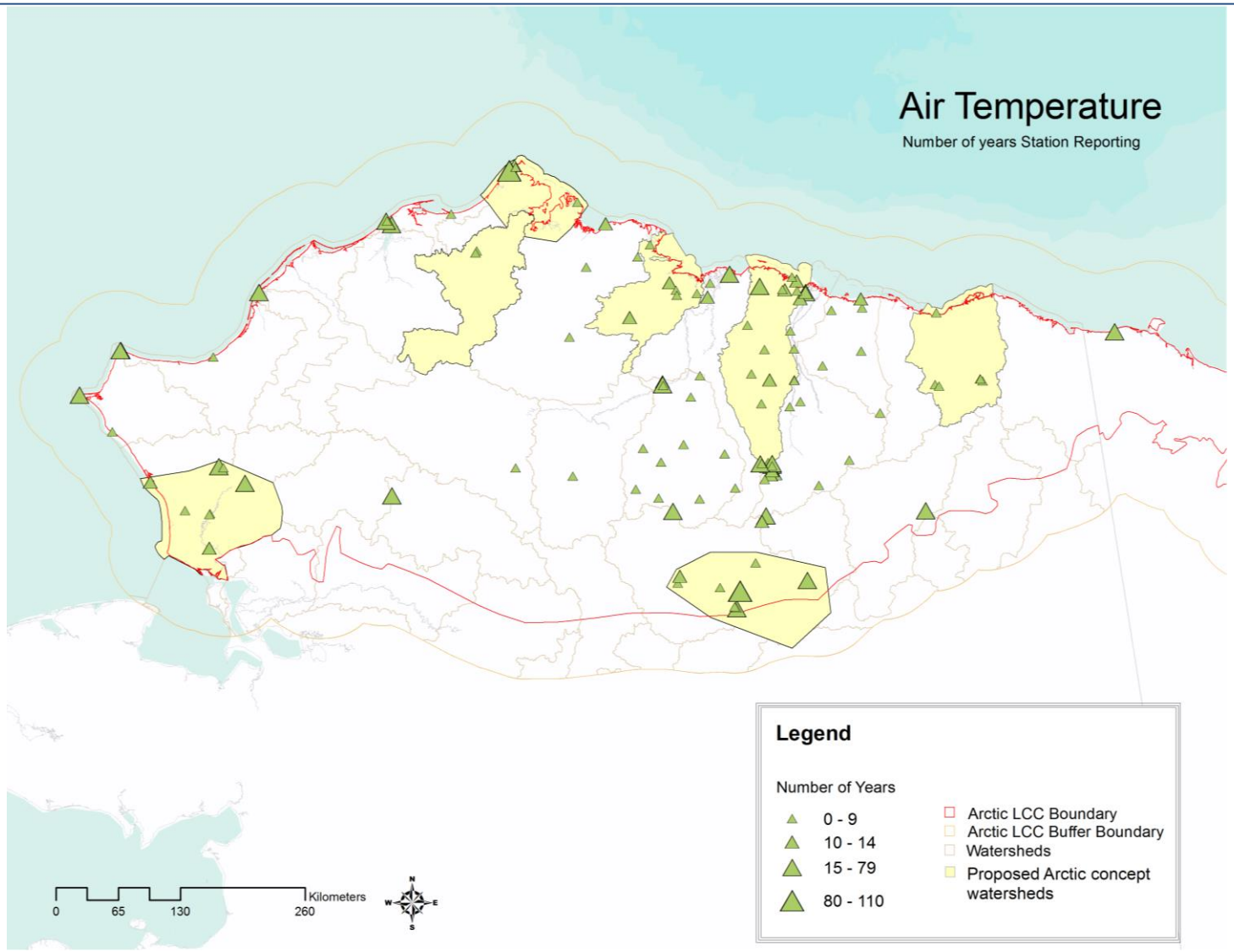
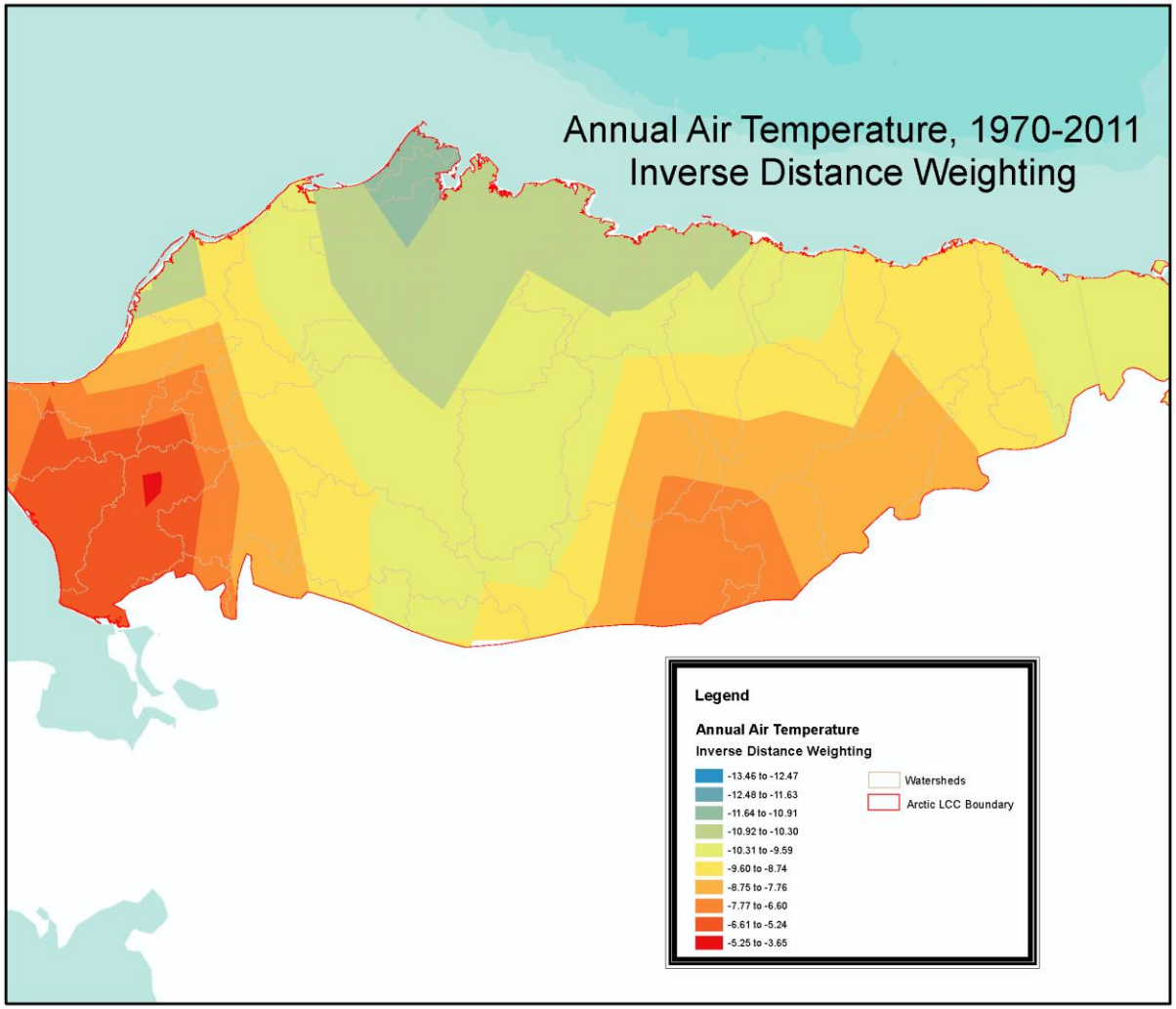
Arctic LCC Network Analysis



Arctic LCC Network Analysis



Our Involvement in other Funded Research on the North Slope

- Northern Science Services (Airborne Mapping)
- NSF OPP Seasonality (Cohen, Cherry, Barlow)
- DOE ARM (Barrow, Atqasuk, Oliktok)
- Arctic LCC Network Analysis
- NASA CARVE (JPL, SDSU)
- DOE NGEE
- NSF OPP EAGER (Welker, Cable, Cherry)
- BLM Hydrology & Airborne Remote Sensing
- JAMSTEC Hydrology & Satellite Remote Sensing

Questions?

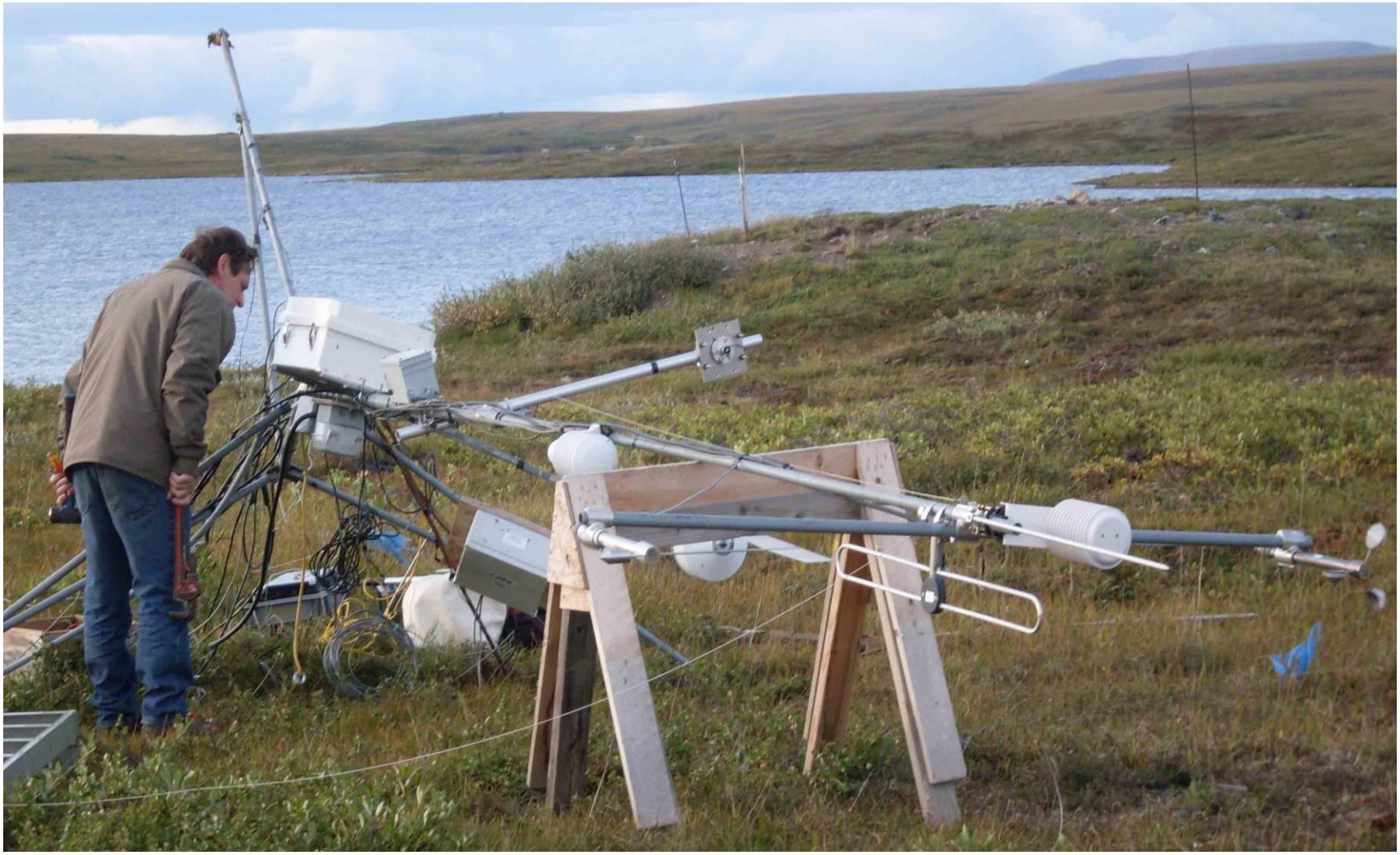


Photo: J. Cherry