

## Logistical Requirements and Field Plan

|                                                         |                                                                                                                                                         |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of fieldwork seasons                             | Four (2016-17, 2017-18, 2018-19, retro in 2019-20)                                                                                                      |
| Deploying participants per season                       | 5-6 in 2016-17 and 4 in subsequent years                                                                                                                |
| BFC/FSTP mountaineer                                    | 1 requested per season (2-4 weeks)                                                                                                                      |
| Science Cargo: Weight of equipment N/B & S/B per season | 2000-3500 lb each way (highest in 2016-17 and retro in late 2019). COMSUR and Vessel, selected direct-shipped to CHC                                    |
| Estimated AN8 fuel requirement                          | Eight 55 gal drums for science experiment (3 seasons; typically cached via airdrop at AGAP-S)                                                           |
| Number of Twin Otter days                               | 5 in 2016-17, 4 per season in subsequent years                                                                                                          |
| Number of days in the deep field                        | 5-7 per season typical                                                                                                                                  |
| Site Name and Location                                  | Ridge A: 81:40:25 S, 72:42:55 E (4040 m elevation)<br>AMIGOS: 81:54:47 S, 73:12:14 E (3999 m elevation)<br>Distance from South Pole: 500 nautical miles |
| Number of days at South Pole                            | 7-14 per season (acclimitization and testing)                                                                                                           |
| Number of days at McMurdo                               | 7-14 per season (field camp checkout/training, camp closeout)                                                                                           |
| Communications requirement                              | 3 active Iridium SIM cards for data downlink (SBD, direct-IP)<br>2 Iridium phones, 1 HF radio only during field deployment                              |
| Facility construction/alteration                        | None.                                                                                                                                                   |

*Table 1: Operational Requirements at a Glance*

Annual servicing of the experiment requires the swapping of the HEAT telescope/receiver module, PLATO-R engines, refueling (8x55 gal drums, for mean power consumption of 500W) and system-level testing. The servicing is typically carried out by 4 grantees at Ridge A in combination with one BFC/FSTP mountaineer. By swapping entire modules versus implementing field repairs, the time spent in the deep field is minimized: 4 days per deployment is requested based on previous servicings in 2013-14. In 2016-17, the one-time additional installation of AWS and AMIGOS-II monitoring equipment at Ridge A and a neighboring “cold sink” site 26 km away is requested in collaboration with Ted Scambos' team at NSIDC. Close support via Twin Otter with 3 hours ground time is requested at the AMIGOS cold site.

A typical deployment might be scheduled as follows:

- Science cargo shipped from Point of Origin to Port Hueneme (October 1)
- Point of Origin to Christchurch to McMurdo (10-14 December)
- Berg Field Camp checkout and Training (15-21 December)
- Arrival at South Pole, Acclimitization and testing (23 December – 2 January)
- Deep field deployment to Ridge A (3-8 January)
- South Pole: Science Cargo retrograde (9-11 January)
- McMurdo return, camp closeout (12-18 January)
- McMurdo to Christchurch to PoO (19-22 January)

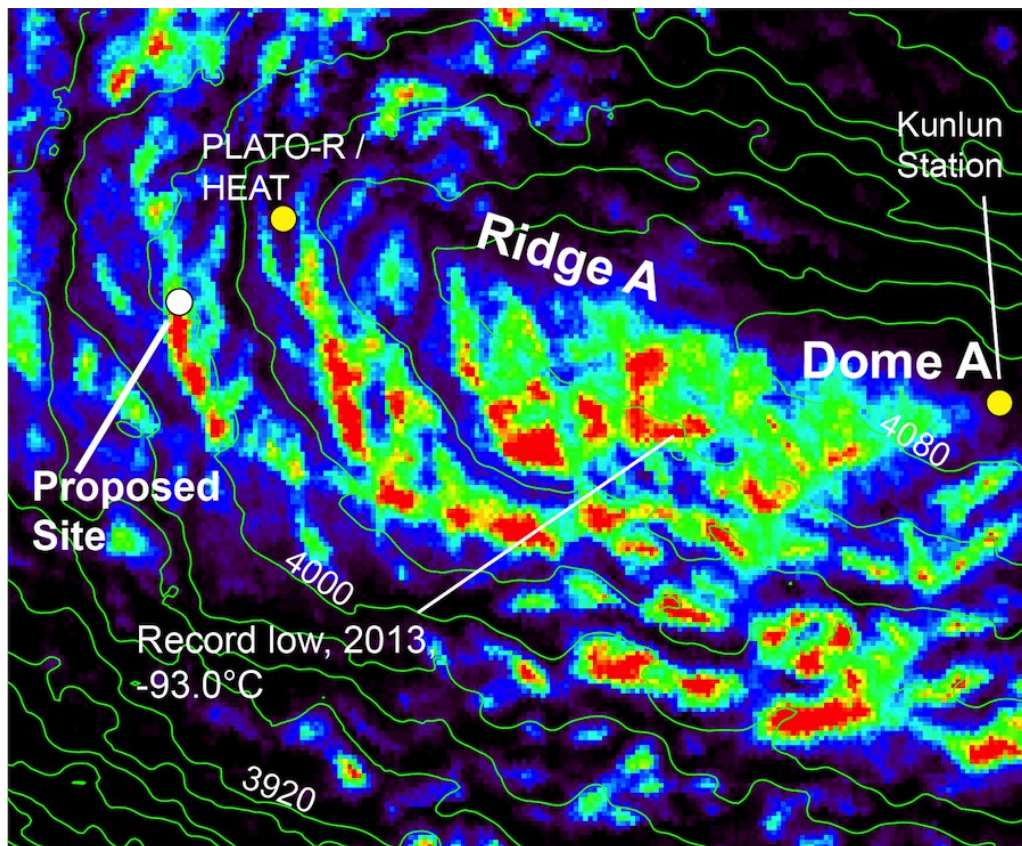


Figure 1: Close up of the proposed AMIGOS “cold sink” site in relation to the HEAT and PLATO-R installation and Dome A. The color scale represents the increasing occurrence rate of surface temperatures below -88C as determined by Land Surface Temperatures from the MODIS instruments on board NASA's Terra and Aqua satellites. Image courtesy of Ted Scambos.