

Traverse as a Means of Resupply of South Pole Station and for Access to Other Locations in Antarctica

A surface traverse capability, connecting McMurdo and South Pole, has been under development by OPP since 2002. This Proof of Concept (POC) project will likely be completed this season (2005-2006) with a self-sustained round trip, delivering several pieces of heavy equipment to South Pole that otherwise would have required disassembly and multiple LC-130 flights to deliver.

The POC traverse so far has made excellent progress, achieving

- Establishment of a safe route connecting McMurdo to a point on the polar plateau less than 200 miles from South Pole,
- Evaluation and refinement of a variety of equipment to arrive at a final selection of vehicles,
- Discovery and exploitation of a suite of remote terrain monitoring tools that provide for safe and very efficient evaluation of the 1000-mile traverse corridor.

Completion of the POC will lead to a master “lessons learned” exercise that will be the foundation for design and planning of a production traverse capability. OPP anticipates that several key relationships will be established that will aid in decisions about the quantity of traverse equipment, frequency of traverse trips, staffing, delivery capacity, and purchase and operating costs as a function of what is desired to be delivered and between what points.

The initial focus for the USAP traverse capability is movement of fuel, routine resupply items, and construction materials between McMurdo and South Pole. By July 2006, OPP will have developed a plan depicting an efficient South Pole resupply traverse starting from a reasonable extension of the POC results to an “ideal” future traverse that will potentially involve significant robotics and sensor systems and greatly reduced on-continent staffing needs.

In addressing the Subcommittee’s recommendations, OPP will also explore other embarkation points for a traverse to South Pole and develop scenarios for both routine and contingency use of these other locations. The most obvious alternatives are sites of activity by international Antarctic partners, especially those with traverse routes established from the coast to the interior (see Figure below). OPP will assess the facilities (including harbors and off-loading capabilities) at established coastal stations including identification of the level of infrastructure that would be needed to support a routine and a contingency use traverse. OPP will also consider other potential sites for transfer of materiel from ship to tractor train (e.g., Ross Ice Shelf edge).

OPP will also establish a plan to engage interactively with the field science community to learn what areas of Antarctica are of keen research interest and are currently very difficult, costly, or impossible to access by aircraft. Additionally, OPP will evaluate the potential for surface traverses to better supply field sites that are now served by LC-130 aircraft.

