iSTAR: UK ice sheet traverse across Pine Island Glacier drainage basin

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• Support major field science effort in remote area
• New way of doing fieldwork in Antarctica
• Operations - Doing science
iSTAR traverse:

- 900 km route
- 12 people (BAS, Leeds, Reading, Edinburgh, Bristol)
- 9 scientists, 3 support
- Experiments *en-route* and at sites
iSTAR traverse team, Christmas 2013, Pine Island Glacier “PIG”
iSTAR traverse camp from the air
Deep radar

Subglacial landscape
Shallow radar (GPR)
Shallow radar ("pRES")
Snow accumulation variability
“Neutron Scattering” measurements of snow density
Ice flow measurements
RADAR RESULTS
Bed shape
Data obtained

- 68 Profiles obtained across 22 sites
- Five 1km nested grids
- One 100m nested grid
- GPS measurements of lat, long, elevation +/-5cm accuracy
- New access holes iSTAR02, 05

1Km nested grid.
1m, 10m, 100m, 1Km
iSTAR Traverse, Summary of Achievements

- Route length: 900km
- 12 people (9 scientists, 3 support staff), 2 months
- Deep radar: >2000 km
- Shallow radar (GPR): 950 km
- Shallow radar (pRES): 900 km
- 68 Neutron Probe holes logged
- 11 over-winter GPS stations installed

Could not have achieved this in 2 months without traverse technology
Future for the traverse capability? What’s next?

- iSTAR is only half-way there!
- Second traverse next season
- Ronne & Filchner ice shelves
- UK POLENET (seismic, PIG area)
- BEAMISH (Rutford Ice Stream)

... and then ...?
Thank you