

# Borehole Logging Working Group

Science Advisory Board Telecon  
April 22, 2014

## Current WG mailing list:

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# Winches

Adopted standard 3/16" four-conductor armored oil-patch cable & 1" Gearhart-Owen cablehead

IDDO winch operator deployed to the field with any IDDO winch

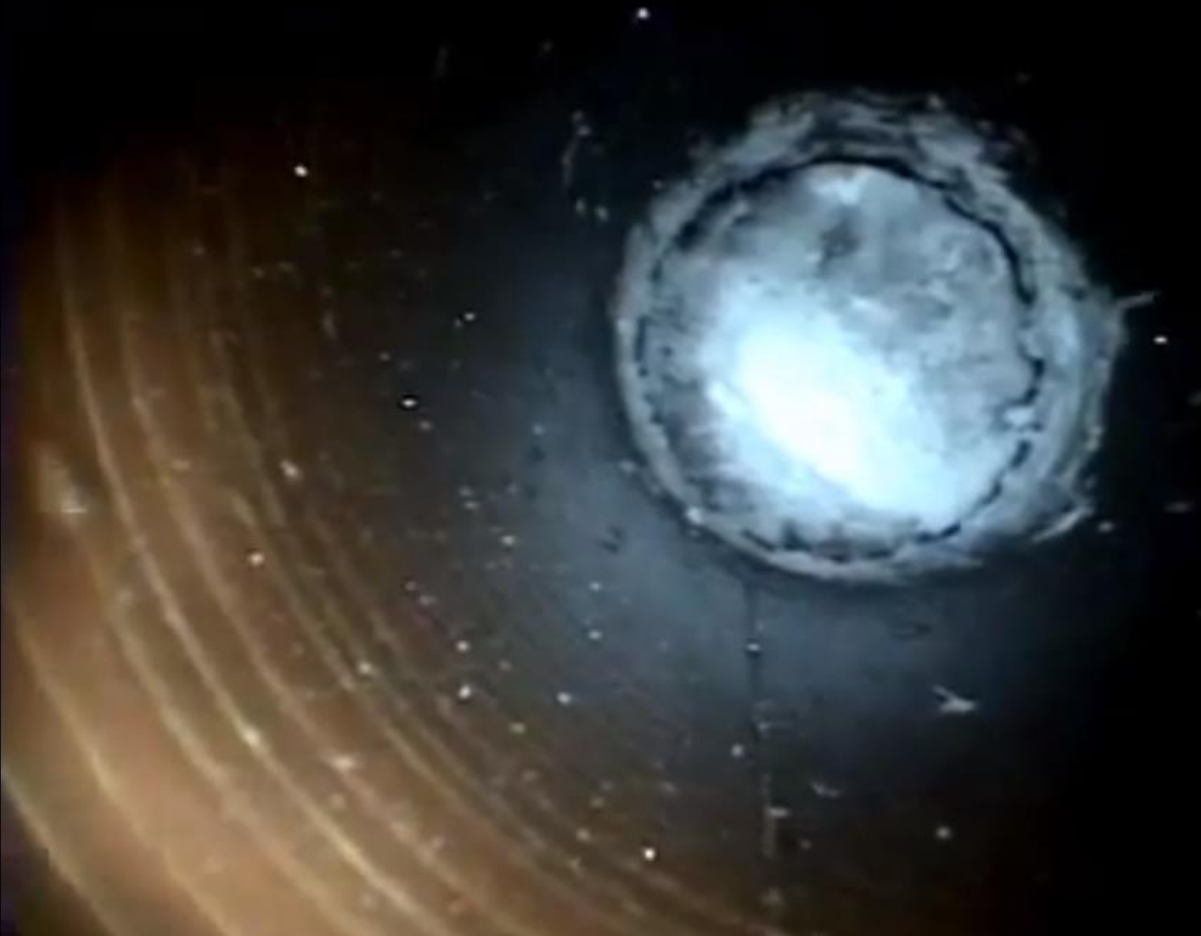
- IDDO intermediate (1500 m) winch
  - Deployed at SDM in 2013-14 for Bay/Talghader
  - Goetz/Morton operators
  - Performance was excellent
- Two IDDO heavy (4 km) winches
  - USGS (Gary Clow) winch transferred to IDDO
  - New IDDO winch delivered, built, and crated
    - Field test in 2014-15 at WAIS Divide? No
    - NEEM test in May 2015?

# Recent and Upcoming logging projects

- WAIS Divide
  - Logging mission 2013-14 postponed
  - Season 2014-15
    - Clow (temperature)
    - Pettit/Obbard (MHz sonic caliper) + 2015-16
    - Peters (seismic)
    - Bay/Talghader (optical)
  - Five replicate deviations in WD borehole
- SPICE (South Pole) core
  - Drilling planned to 700 m 2014-15; to 1500 m 2015-16
  - Estisol 140 drilling fluid
- Siple Dome
  - Bay/Talghader logged in 2013-14

# SDM ice plug

- After much planning/contingency the plug did not pose a problem
- Plug formed from snow entering multiple joints of the casing



# GISP2D as of 2007

114.956



039.501



167.191



048.282



# Recent and Upcoming logging projects

- RAID (Rapid Access Ice Drill)
  - High value project for borehole logging science
  - ~5 holes per season, ~40 total
  - Dedicated logging winch needed, partly for drill development
    - ~3300 m depth capacity
    - Pressure, temperature, fast optical dating
    - Diameter qualifying, inclination/trajectory, camera
  - Logging scientists have strong opinions about borehole qualities
  - Logging science will impact design of drill and qualifying tools
  - RAID field test in 2016-17 -- design work should begin soon
- ⇒ Community involvement in design/procurement of winch and qualifying tools. Small group of PIs proposes to fund this?
- ⇒ Infrastructure needed to manage future logging projects
  - Section on RAID borehole preservation to be added to LRSP

# Borehole Logging Working Group

- Borehole qualifying - should IDDO be tasked with this?

From the current Field Project Requirements form:

At this time drill equipment in IDDO's inventory does not have the capability of verifying borehole parameters such as inclination, diameter, depth, roundness, temperature, etc. IDDO does not currently maintain a logging winch and tools capable for verifying such parameters, but will explore the purchase or development of such equipment should it be critical for project success

- Could be interchangeable with drill sonde
- Log as hole is drilled or upon completion
- Would provide baseline for deformation studies
- Would inform drillers of potential problems

# Borehole Logging Working Group

- Borehole maintenance - should IDDO be tasked with borehole maintenance and repair, and to what extent?
  - Ice plugs, casing integrity
  - Sheaves, towers, etc. needed for access
  - BLWG would need to prioritize borehole preservation
- BLWG should consider formation of allocation committee
  - Manage resources: winch time, operator time, borehole time
  - Pre-deployment engineering review
  - Test telemetry on winches
  - Ensure new tools are safe
  - Ensure projects ready to deploy
  - Involve IDDO engineers