BOREALIS SUBMARINE CABLE / WEGENER ARCTIC DEEP RESEARCH PROGRAM

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SAON Board Meeting
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PROPOSED Borealis Submarine Cable:
Norway - US West Coast - Japan

• Capable of powering scientific research equipment on the seafloor
• 1 fiber pair (15 Tb) dedicated to scientific research
• Handful of branch units supporting “science observatories/nodes” – add/drop wavelengths
• Simple sensors deployed along cable at repeaters every 60 – 100 km (“SMART”)
Wegener Arctic Deep Research Program: Leveraging the Borealis Cable for Science

- Research-enabled cable equipped with equipment to monitor:
  - Ocean Dynamics
  - Ocean and Sub-seafloor Biosphere
  - Climate Variability
  - Regional Ecosystems
  - Seismic Activity
  - Infrastructure for neutrino detectors
  - Applications to planetary missions
Challenges / Status

CHALLENGES
• Combined telecom + science system presents significant challenges
  • Telecom cable industry usually requires separation (risk aversion)
  • Several technical solutions exist
    • Industry has capabilities for science, but need requirements defined
• Pilot studies needed to demonstrate feasibility
• Should Borealis be done in stages/phases? Coordination with other efforts?

PROJECT STATUS
• Initial funding obtained
• Desktop study being conducted
• Several funding/investor opportunities being pursued
• Joint funding paths exist – need to broaden potential funder list beyond traditional players
• Science community involvement essential
  • Workshop will be proposed for Fall 2018 (Washington, DC, USA)