

# **BOREALIS SUBMARINE CABLE / WEGENER ARCTIC DEEP RESEARCH PROGRAM**

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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)

