

# AGU FALL MEETING

Online Everywhere | 1–17 December 2020

## SEARCH

## BROWSE

## SESSIONS/ABSTRACTS

## BROWSE BY

## CONVENER/AUTHOR

**S059-04**

### SMART Subsea Cables for Observing the Ocean and Earth: Update

Tuesday, 15 December 2020: 19:14

Virtual

**Bruce M Howe**<sup>1</sup>, Michael Angove<sup>2</sup>, Diego Arcas<sup>3</sup>, Jerome Aucan<sup>4</sup>, Christopher R Barnes<sup>5</sup>, Jose Barros<sup>6</sup>, Laura Beranzoli<sup>7</sup>, Nigel Bayliff<sup>8</sup>, Nathan C Becker<sup>9</sup>, Esline Garaebiti<sup>10</sup>, Fernando Carrilho<sup>11</sup>, Matthew J Fouch<sup>12</sup>, Bill Fry<sup>13</sup>, Laura S L Kong<sup>14</sup>, Stephen Lentz<sup>15</sup>, Douglas S Luther<sup>16</sup>, Giorgio Mangano<sup>17</sup>, Giuditta Marinaro<sup>18</sup>, Luis Manuel Matias<sup>19</sup>, David T Meldrum<sup>20</sup>, Yuelong Miao<sup>21</sup>, Manfred Niehus<sup>22</sup>, Yasser Omar<sup>23</sup>, Sasono Radardjo<sup>24</sup>, Mary Rengifo<sup>25</sup>, Nelly Florida Riama<sup>26</sup>, Charlotte A Rowe<sup>27</sup>, Vasco Sá<sup>23</sup>, Andi Eka Sakya<sup>24</sup>, Masanao Shinohara<sup>28</sup>, Y Tony Song<sup>29</sup>, Torsten Thiele<sup>30</sup>, Frederik J Tilmann<sup>31</sup>, Udrekh Udrek<sup>32</sup>, Christa von Hillebrandt-Andrade<sup>33</sup>, Stuart Weinstein<sup>9</sup> and Carlos Zuniga<sup>34</sup>, (1)University of Hawaii at Manoa, Honolulu, HI, United States, (2)National Weather Service Tsunami Program, Silver Spring, MD, United States, (3)NOAA, NOAA Center for Tsunami Research, Seattle, WA, United States, (4)Institut de Recherche pour le Développement (IRD), Écologie Marine Tropicale des Océans Pacifique et Indien (ENTROPIE), Nouméa, New Caledonia, (5)University of Victoria, Victoria, BC, Canada, (6)Autoridade Nacional de Comunicações (ANACOM), Lisbon, Portugal, (7)Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italy, (8)SIN Medida Limited, Bristol, United Kingdom, (9)NOAA/NWS/Pacific Tsunami Warning Center, Honolulu, HI, United States, (10)Vanuatu Meteorology and Geohazards Department, Port Vila, Vanuatu, (11)Instituto Portugues do Mar e da Atmosfera, Lisbon, Portugal, (12)Samara Data, Washington, DC, United States, (13)GNS Science, Lower Hutt, New Zealand, (14)UNESCO IOC - NOAA, Honolulu, HI, United States, (15)Ocean Specialists, Inc., McLean, VA, United States, (16)Univ Hawaii Manoa, Honolulu, HI, United States, (17)Guralp Systems Ltd, Reading, United Kingdom, (18)National Institute of Geophysics and Volcanology, Rome, Italy, (19)Instituto Dom Luiz-Faculdade de Ciências da Universidade de Lisboa, Lisboa, Portugal, (20)Scottish Association for Marine Science, Oban, United Kingdom, (21)Tsunami Warning Services, Bureau of Meteorology, Melbourne, Australia, (22)Instituto Superior de Engenharia de Lisboa (ISEL), Lisbon, Portugal, (23)Instituto de Telecomunicações (IT), Lisbon, Portugal, (24)Agency for the Assessment and Application of Technology (BPPT), Jakarta, Indonesia, (25)Maritime Authority of Columbia, Tsunami Warning Center, Bogotá, Colombia, (26)Indonesian Agency for Meteorology, Climatology and Geophysics, Center for Research and Development, Jakarta, Indonesia, (27)Los Alamos National Laboratory - LANL, Earth and Environmental Science, Los Alamos, NM, United States, (28)Univ Tokyo, Tokyo, Japan, (29)Jet Propulsion Laboratory, Pasadena, CA, United States, (30)Global Ocean Trust, London, United Kingdom, (31)Helmholtz Centre Potsdam, GFZ German Research Centre for Geosciences, Potsdam, Germany, (32)National Agency for Disaster Countermeasure (BNPB), Jakarta, Indonesia, (33)NOAA, Caribbean Tsunami Warning Program, Mayaguez, PR, United States, (34)Servicio Hidrografico y Oceanografico de la Armada de Chile, Valparaíso, Chile

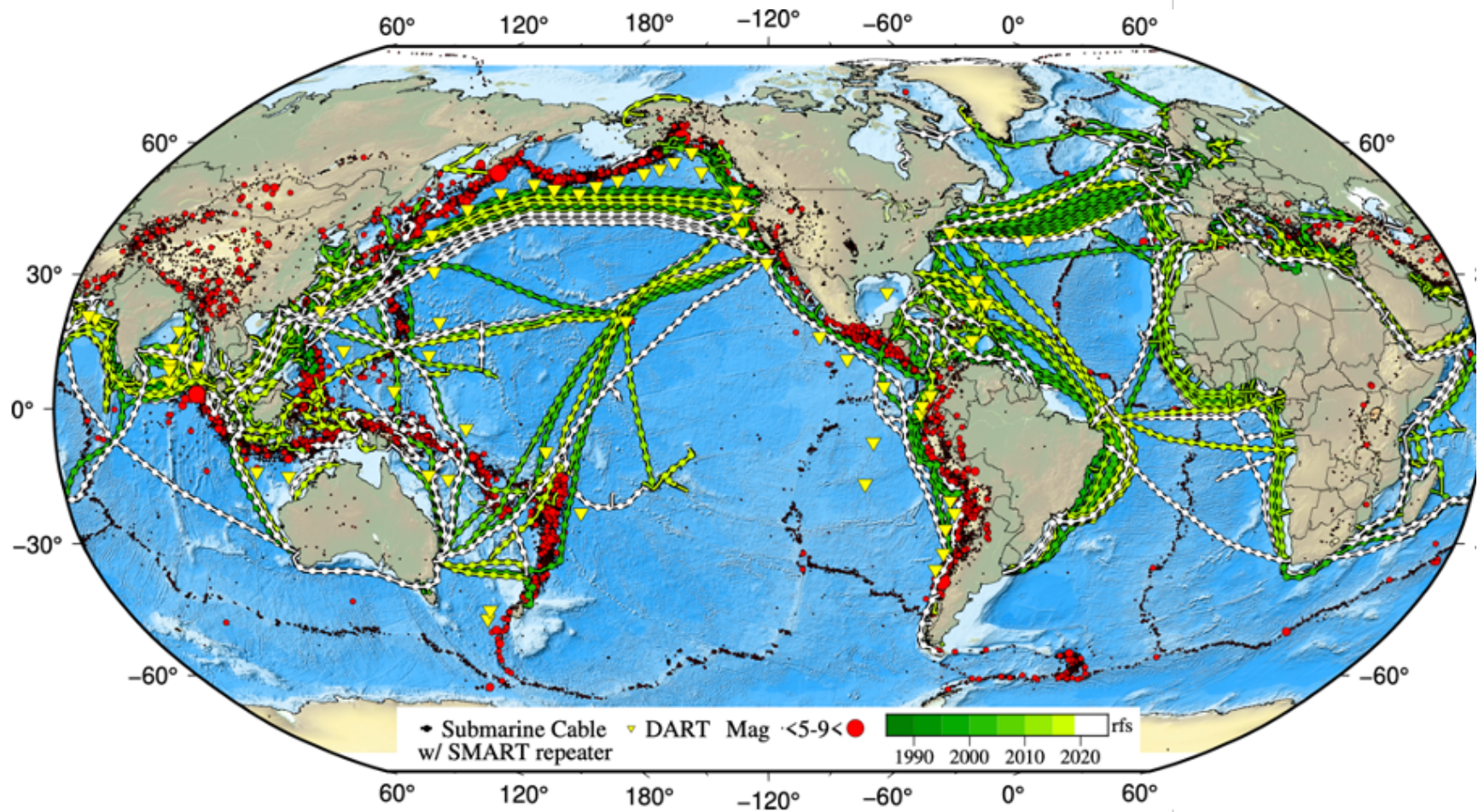
[Recorded Presentation](#)

**Abstract:**

JTF SMART Subsea Cables (Joint Task Force, Science Monitoring And Reliable Telecommunications, 1) is working to integrate environmental sensors for ocean bottom temperature, pressure and seismic acceleration into submarine telecommunications cables. The purpose of SMART Cables is supporting climate and ocean observation, sea level monitoring, observations of Earth structure, and tsunamis and earthquake early warning and disaster risk reduction. Recent advances include regional SMART pilot systems that are the first steps to trans-ocean and global implementation. Building on the OceanObs'19 conference and community white paper (2), an overview and description of the status of ongoing projects will include: The InSea wet demonstration project off Sicily at the EMSO Western Ionian Facility; Gondwana-3 connecting New Caledonia and Vanuatu; Indonesia's Makassar Strait systems working toward systems for the Sumatra-Java megathrust zone; and the CAM-2 triangle system connecting Lisbon, Azores and Madeira. Observing system design studies are elaborated for these and other regions, e. g., the Pacific. Funding reflects a blend of government, development bank, and commercial contributions. In addition to notable scientific and societal benefits, the Telecom mission of societal connectivity will benefit as well, as environmental awareness improves both individual cable system integrity as well as that of the overall global communications network.

The Joint Task Force SMART Subsea cables is sponsored by three United Nations agencies: the International Telecommunications Union, the World Meteorological Organization, and the UNESCO Intergovernmental Oceanographic Commission (ITU/WMO/UNESCO-IOC). <https://www.itu.int/en/ITU-T/climatechange/task-force-sc>.

Howe, B. M., et al, and SMART Cables Joint Task Force, SMART Cables for Observing the Global Ocean: Science and Implementation, *Frontiers in Marine Science*, OceanObs'19 Special Issue, 6, 424. doi: 10.3389/fmars.2019.00424, 2019.



Current and planned submarine cables span the oceans, crossing through zones of oceanographic and seismic interest. As they are replaced over their 10-25 year refresh cycle, SMART capabilities could be added to gradually obtain high data rate global coverage. (cable data from [cablemap.com](http://cablemap.com))

[<< Previous Abstract](#) | [Next Abstract >>](#)

[Facebook](#)

[Instagram](#)

[LinkedIn](#)

[Tumblr](#)

[Twitter](#)

[YouTube](#)

[AGUConnect](#)

© 2020 American Geophysical Union. All Rights Reserved.