

Animals as Oceanographers, data delivery and accessibility

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FOO 2021 - Megafauna Interactions with Industry

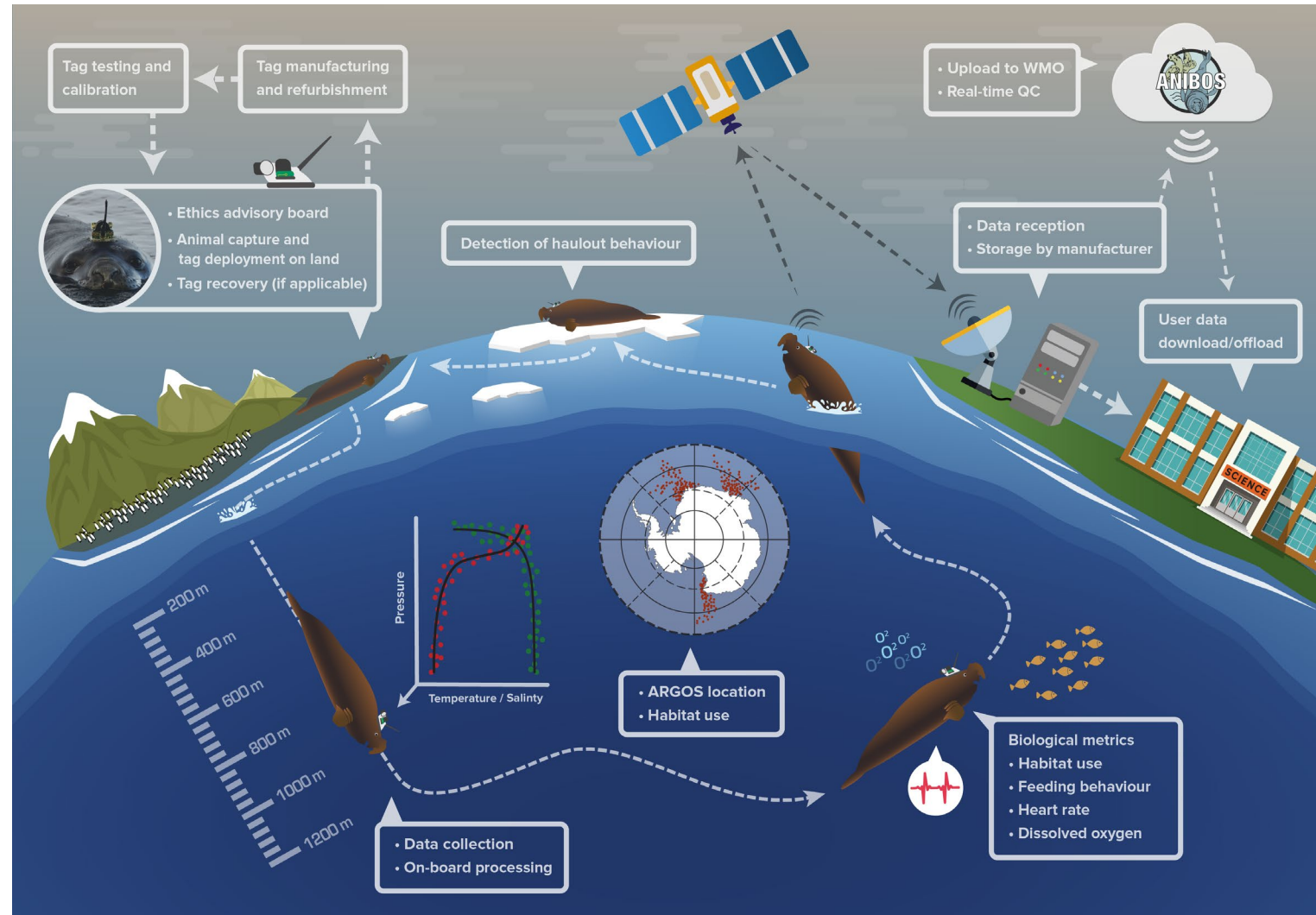
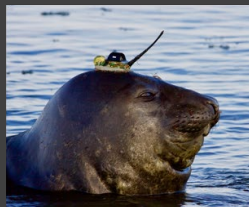


Collecting Oceanographic Data – Overview

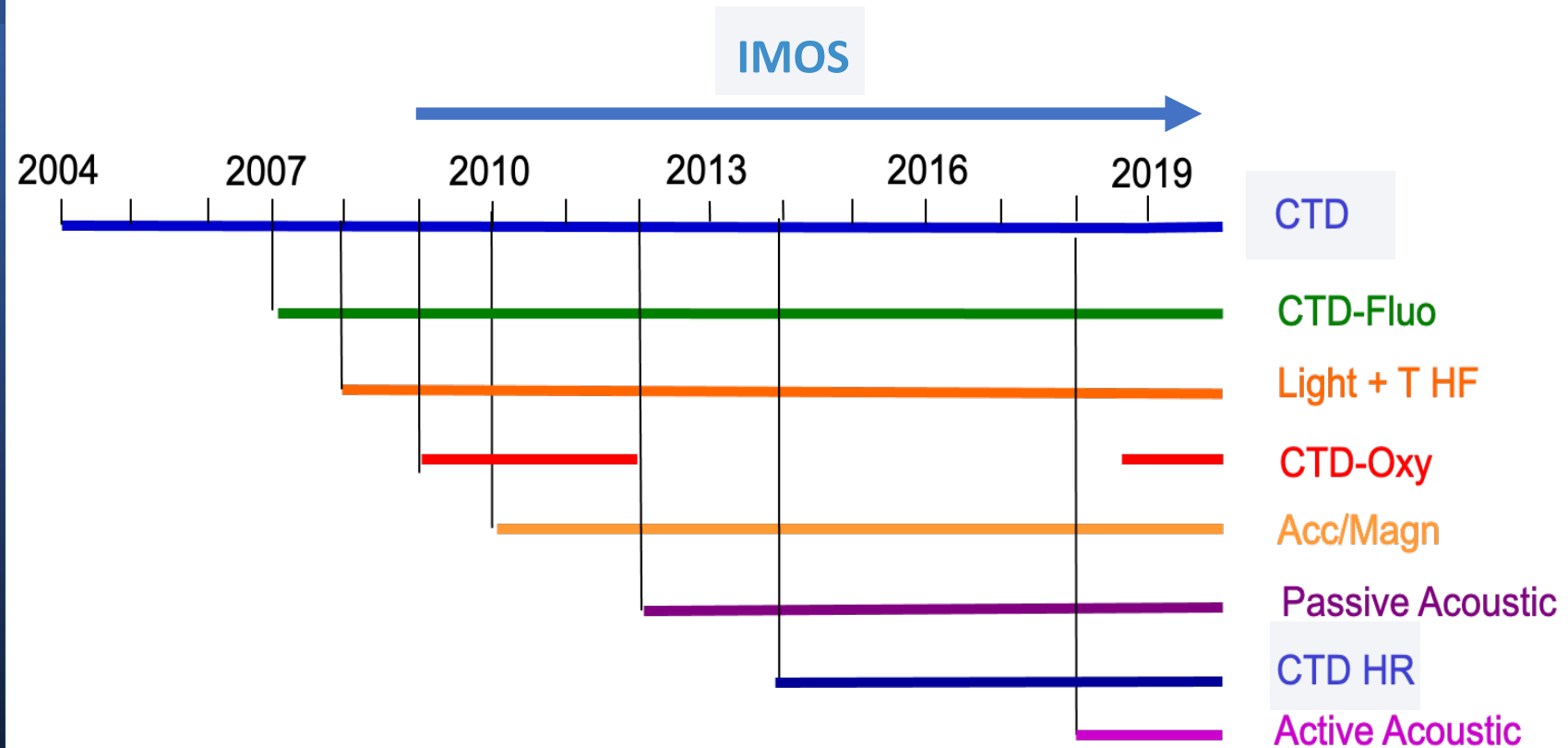
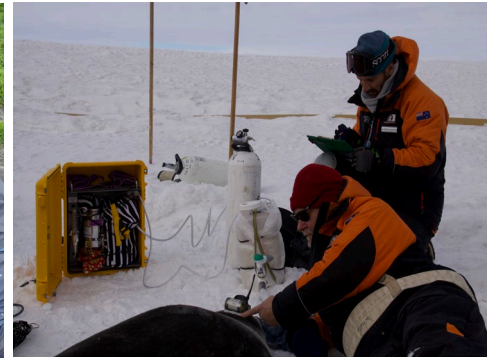
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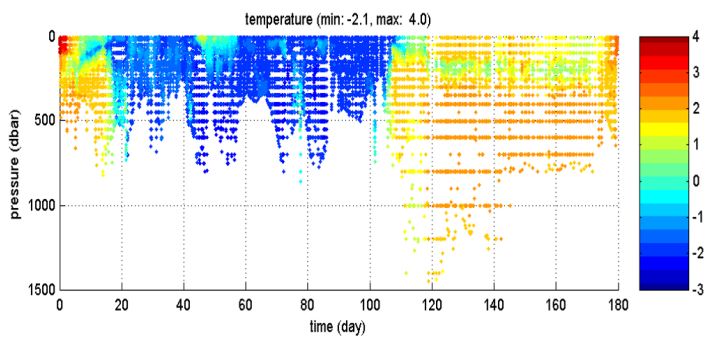


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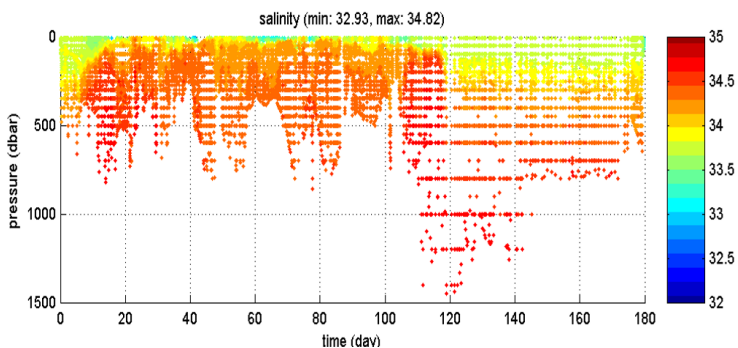


The kinds of Data Being Collected



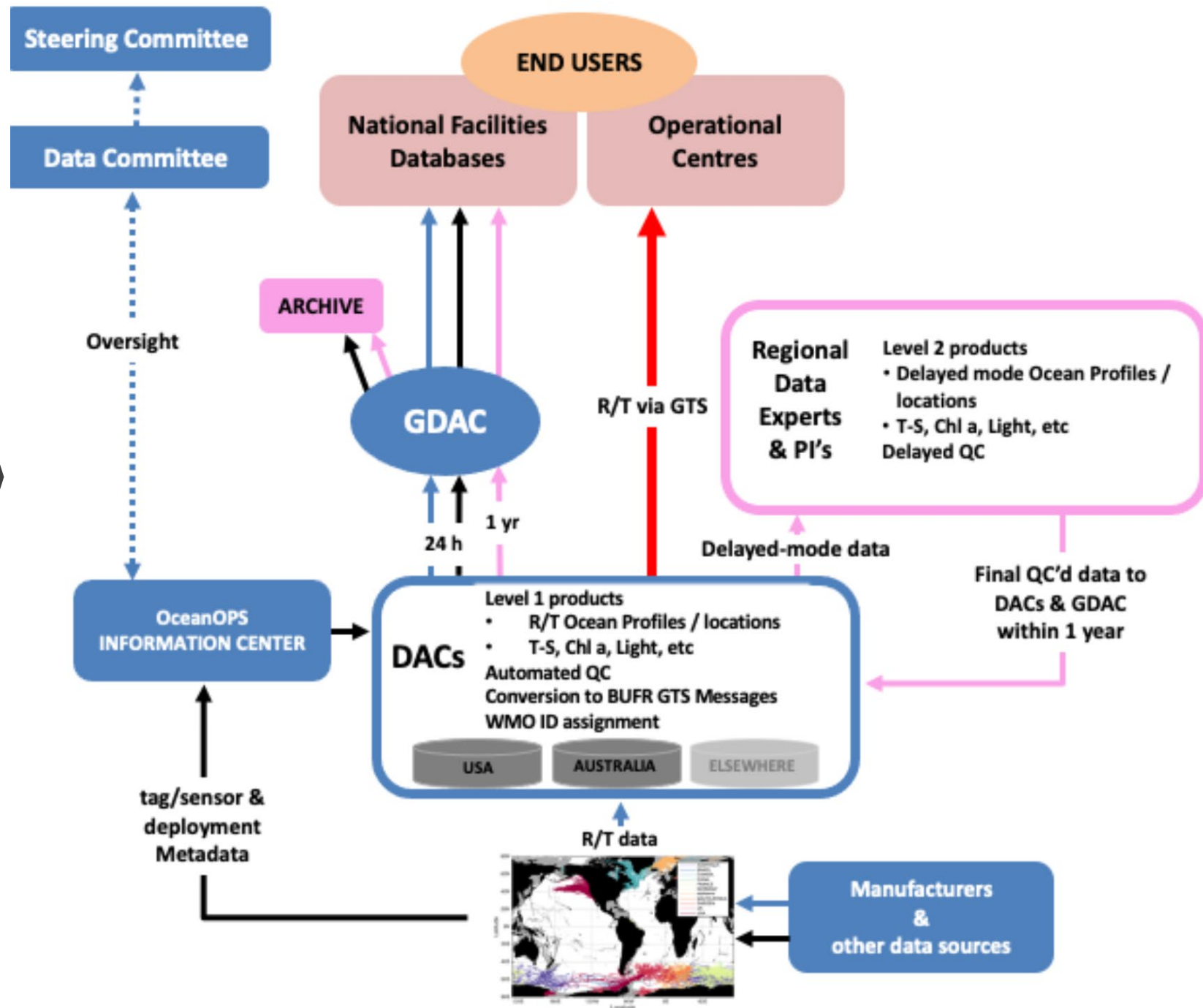


Data Delivery Principles



- Delivering Quality Controlled data that is:**
- Findable - Data and supplementary materials with rich metadata and unique long-lived identifier.
 - Accessible - Data and metadata archived & distributed usable form.
 - Interoperable - Data and metadata conform to accepted Earth Science geospatial data interoperability standards.
 - Reusable - Data have usage license and provide accurate information on provenance, data acquisition and processing to reproduction.
 - Open - Data is free and public

Delivering the Data to the Community



Data Locations



<https://portal.aodn.org.au/>



<https://www.meop.net/database/>



<http://www.coriolis.eu.org/Data-Products/Products/CORA>



National Oceanography Centre
British Oceanographic Data
Centre BODC

<https://www.bodc.ac.uk/data/>

SCIENTIFIC DATA

OPEN

SUBJECT CATEGORIES
» Physical oceanography
» Marine biology

A Southern Indian Ocean database of hydrographic profiles obtained with instrumented elephant seals

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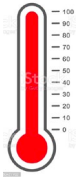
The instrumentation of southern elephant seals with satellite-linked CTD tags has offered unique temporal and spatial coverage of the Southern Indian Ocean since 2004. This includes extensive data from the Antarctic continental slope and shelf regions during the winter months, which is outside the conventional areas of Argo autonomous floats and ship-based studies. This landmark dataset of around 75,000 temperature and salinity profiles from 20–140 °E, concentrated on the sector between the Kerguelen Islands and Prydz Bay, continues to grow through the coordinated efforts of French and Australian marine research teams. The seal data are quality controlled and calibrated using delayed-mode techniques involving comparisons with other existing profiles as well as cross-comparisons similar to established protocols within the Argo community, with a resulting accuracy of ±0.03 °C in temperature and ±0.05 in salinity or better. The data offer invaluable new insights into the water masses, oceanographic processes and provides a vital tool for oceanographers seeking to advance our understanding of this key component of the global ocean climate.

Design Type(s)	observation design • data integration
Measurement Type(s)	hydrographic profiling
Technology Type(s)	animal-borne temperature and conductivity sensor
Factor Type(s)	period
Sample Characteristic(s)	Mirounga leonina • marine biome • Southern Indian Ocean

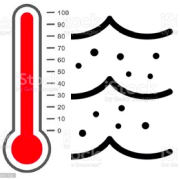
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Roquet, F., Williams, G.D., Hindell, M., Harcourt, R., McMahon, C.R., Charrassin, J.B., Reverdin, G., Boehme, L., Lovell, P., and Fedak, M. (2014). A Southern Indian Ocean database of hydrographic profiles obtained with instrumented elephant seals *Nature Scientific Data* 1, 140028 10.1038/sdata.2014.28.

Data Usage



Temperature - Real time operational oceanography through GTS



Temperature and Sanity – Delayed mode research applications, growing



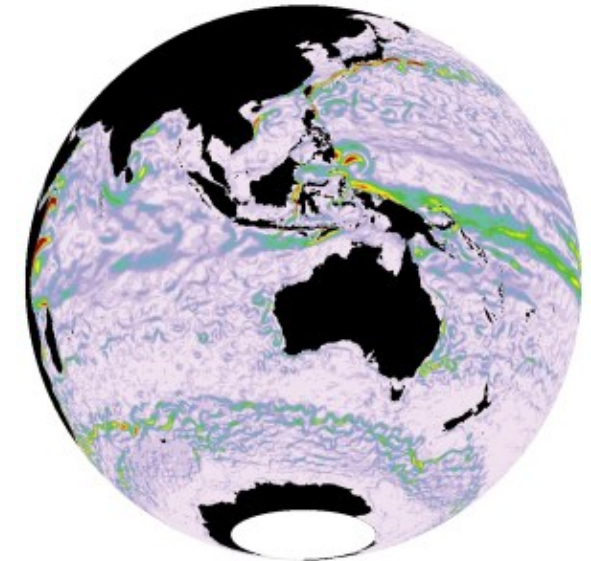
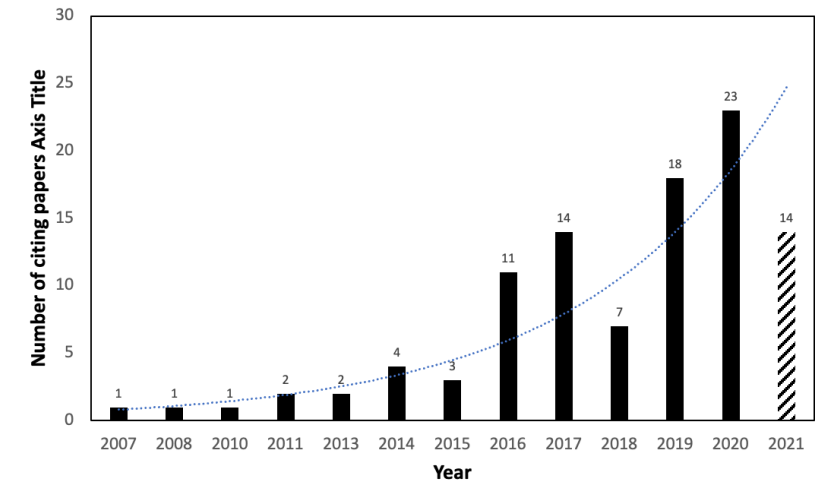
DATA MODELING

Assimilated into gridded products under the Bluelink banner *e.g.* – BLUE MAPS, BRAN forecasting ocean state



Animal movements, behaviour & conservation

Annual number of citations



Surface current speed from BRAN2020



Thank-you Questions



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development

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