The Global High Frequency Radar Network

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GOOS Strategic Mapping
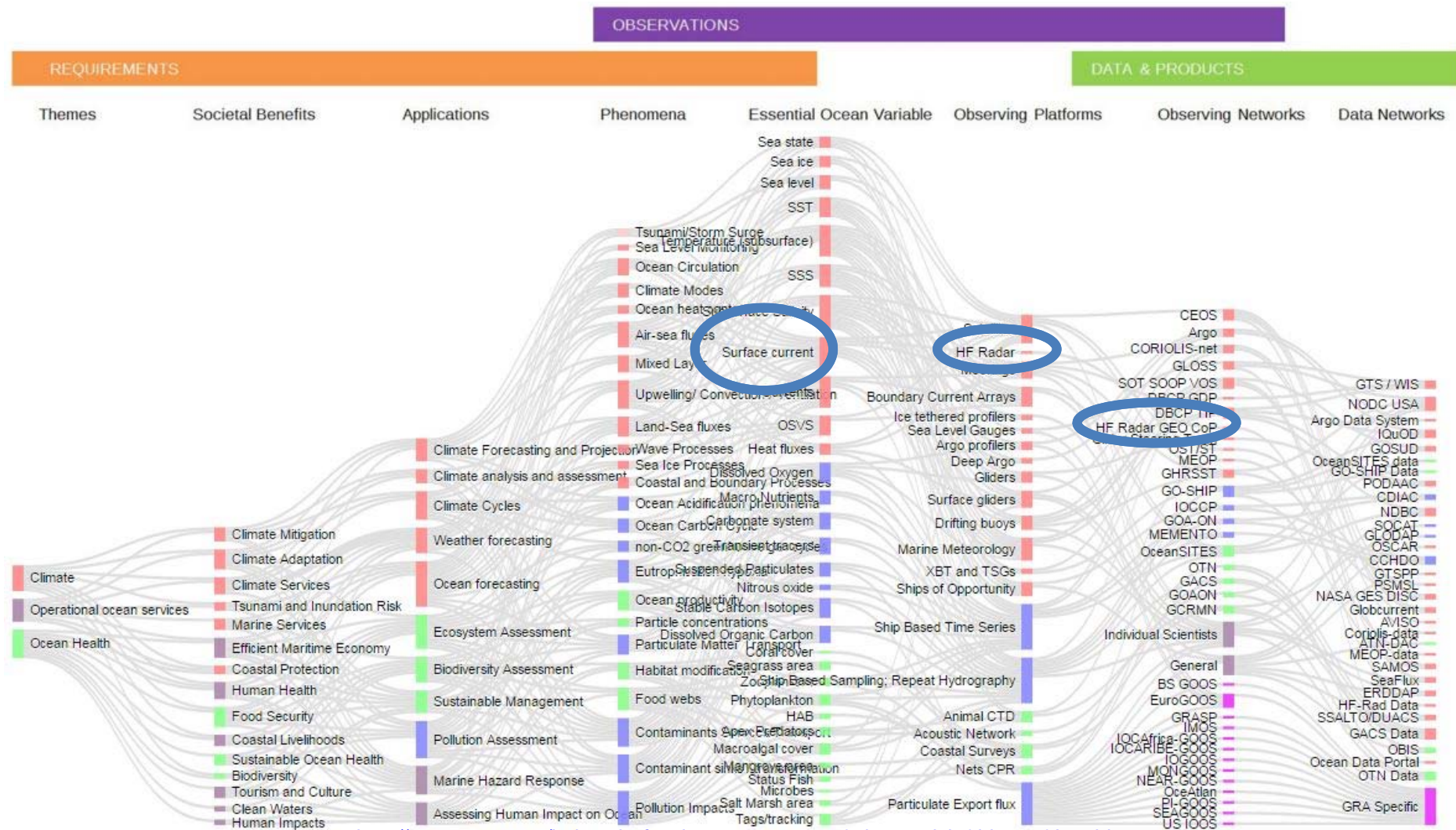
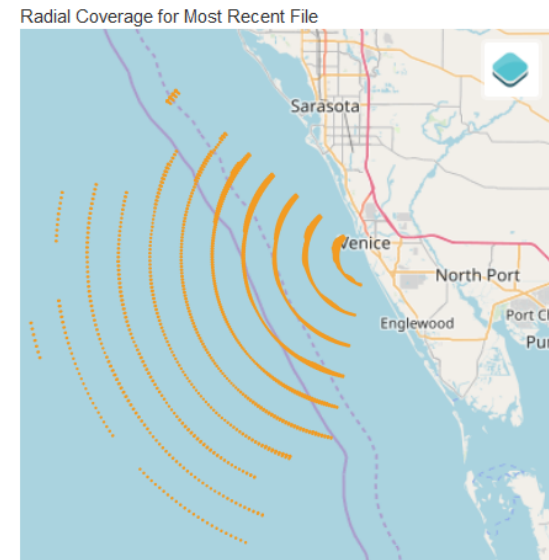

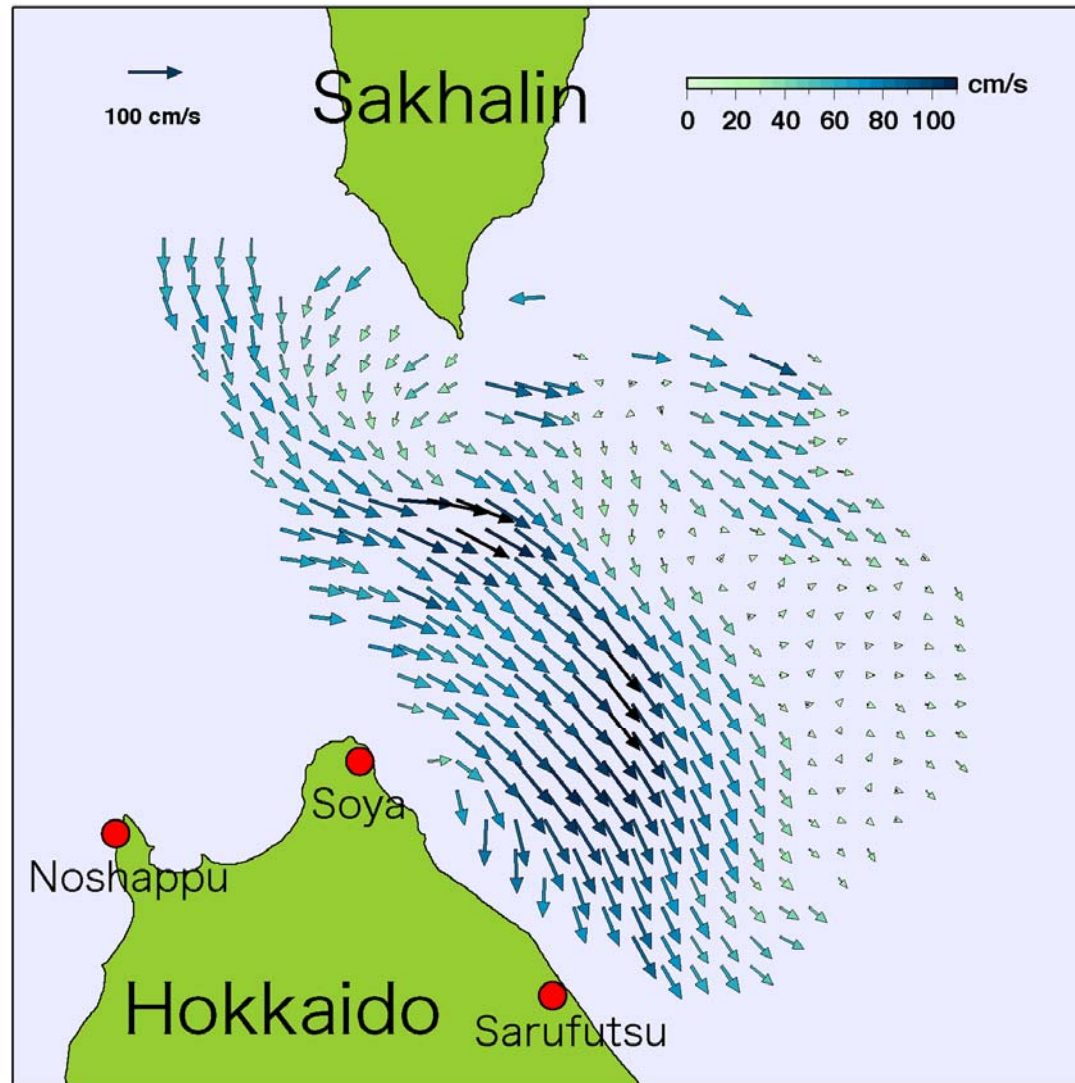http://goosocean.org/index.php?option=com_content&view=article&id=120&Itemid=277

HFR Technology Overview

"High-Frequency Radar:
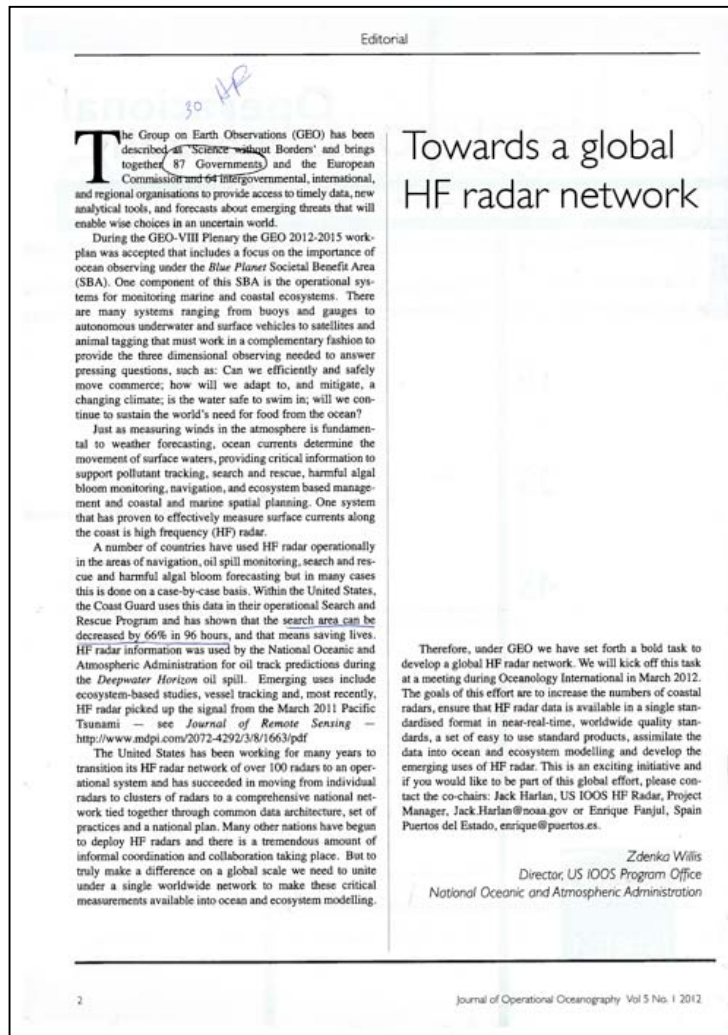Supporting Critical Coastal Operations with Real-time Surface Current Data"
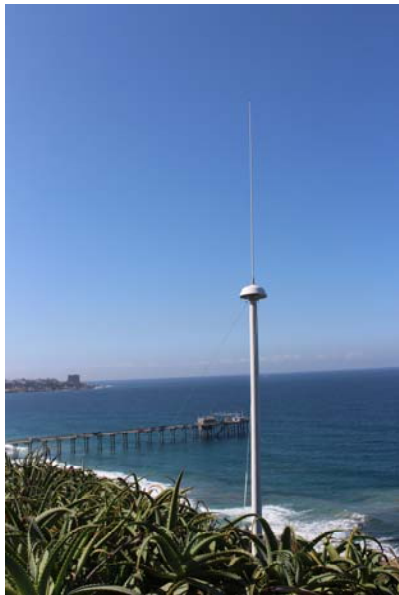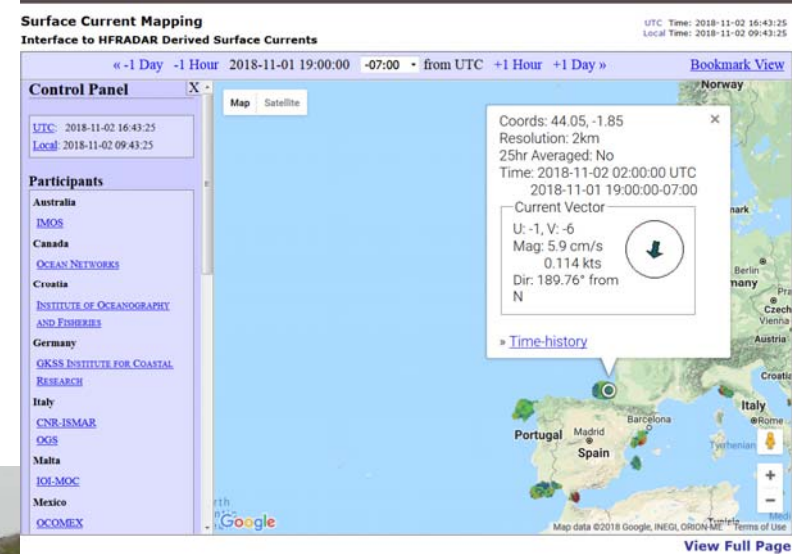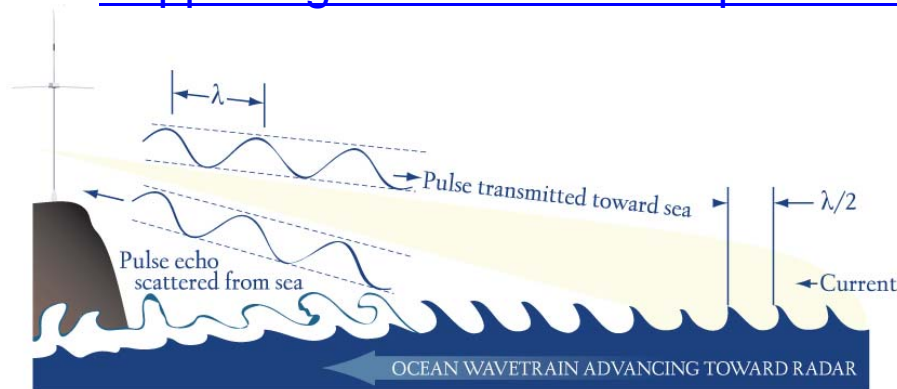
Example of Observed Snapshot

17h20m (JST)
3 Aug 2003

Real-time current maps are available from our web site.
http://wwwoc.lowtem.hokudai.ac.jp/hf-radar/index.html
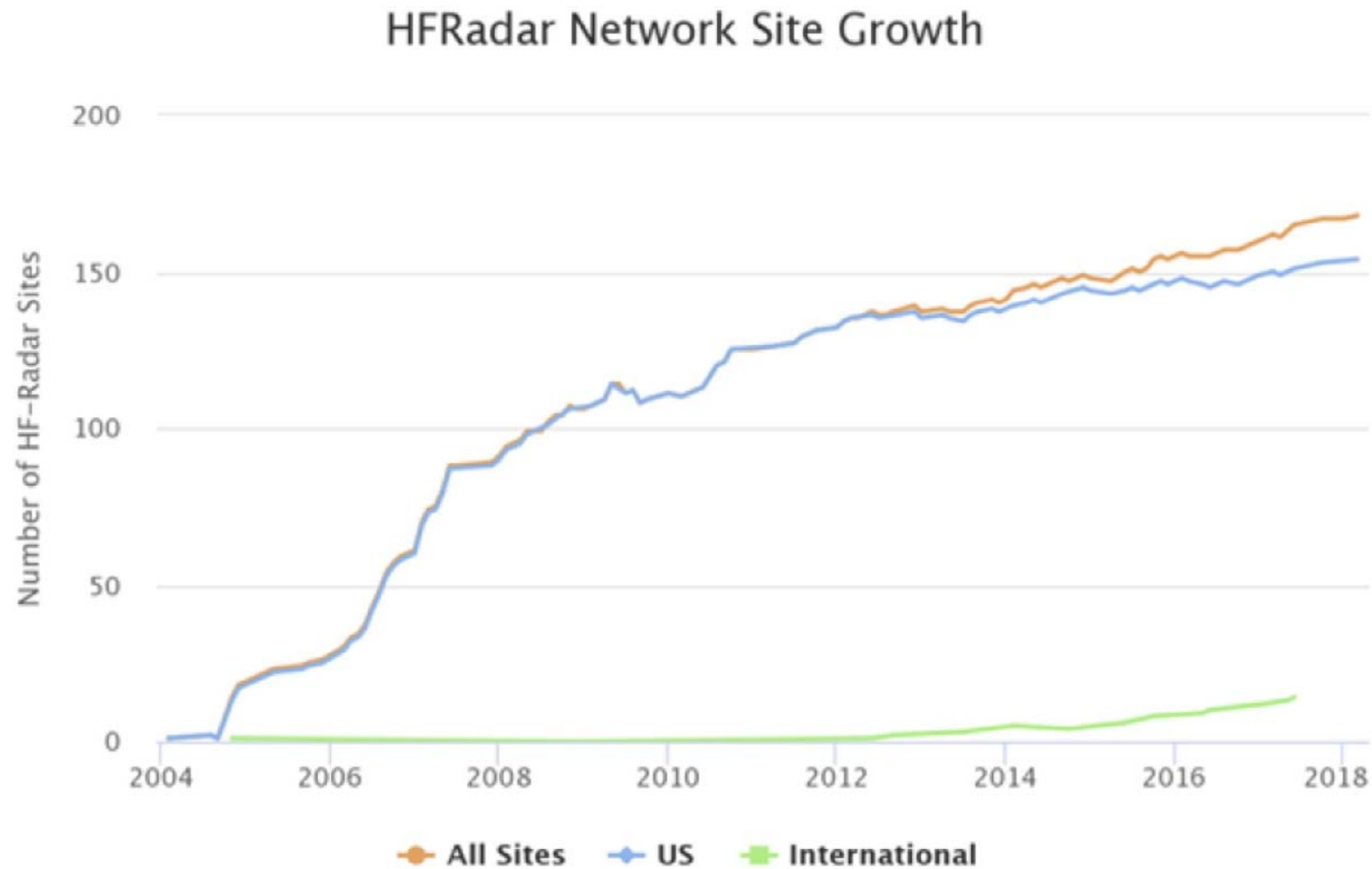
The Global HF Radar Network

- **Established in March 2012**
- **Meetings Held**
  - 2012 England
  - 2013 Norway
  - 2014 Taiwan
  - 2015 Greece
  - 2016 United States
- **Presentations available here**

http://global-hfradar.org/meetings.html

Goals for Global HF Radar Network

1) **Increase the number of coastal radars**
2) **Ensure HFR data is available in a single standardized format in near-real-time,**
3) **Assimilate data into ocean and ecosystem models**
4) **A set of easy to use standard products**
5) **Worldwide Quality Standards**
6) **Develop emerging uses of HF radar**
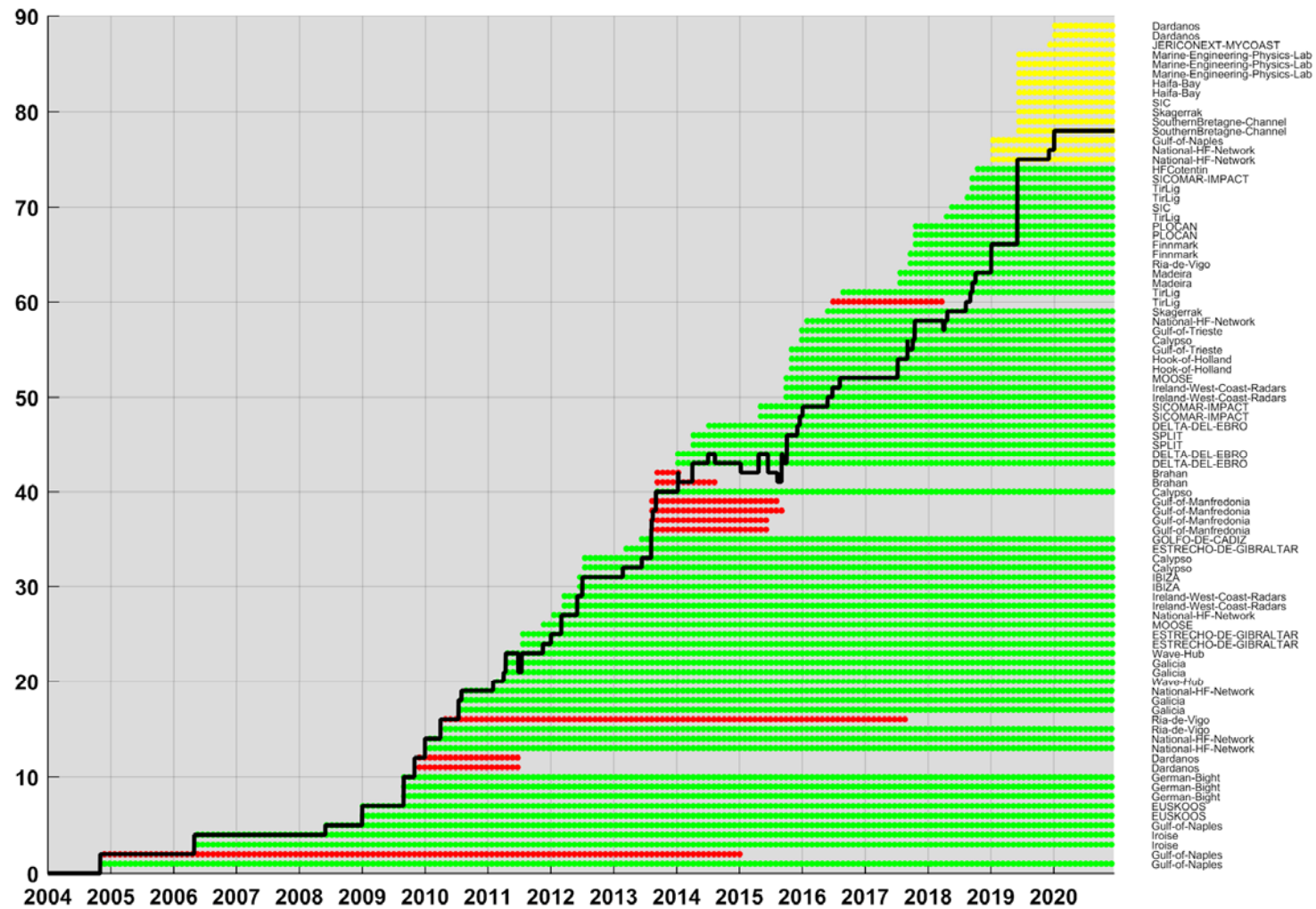
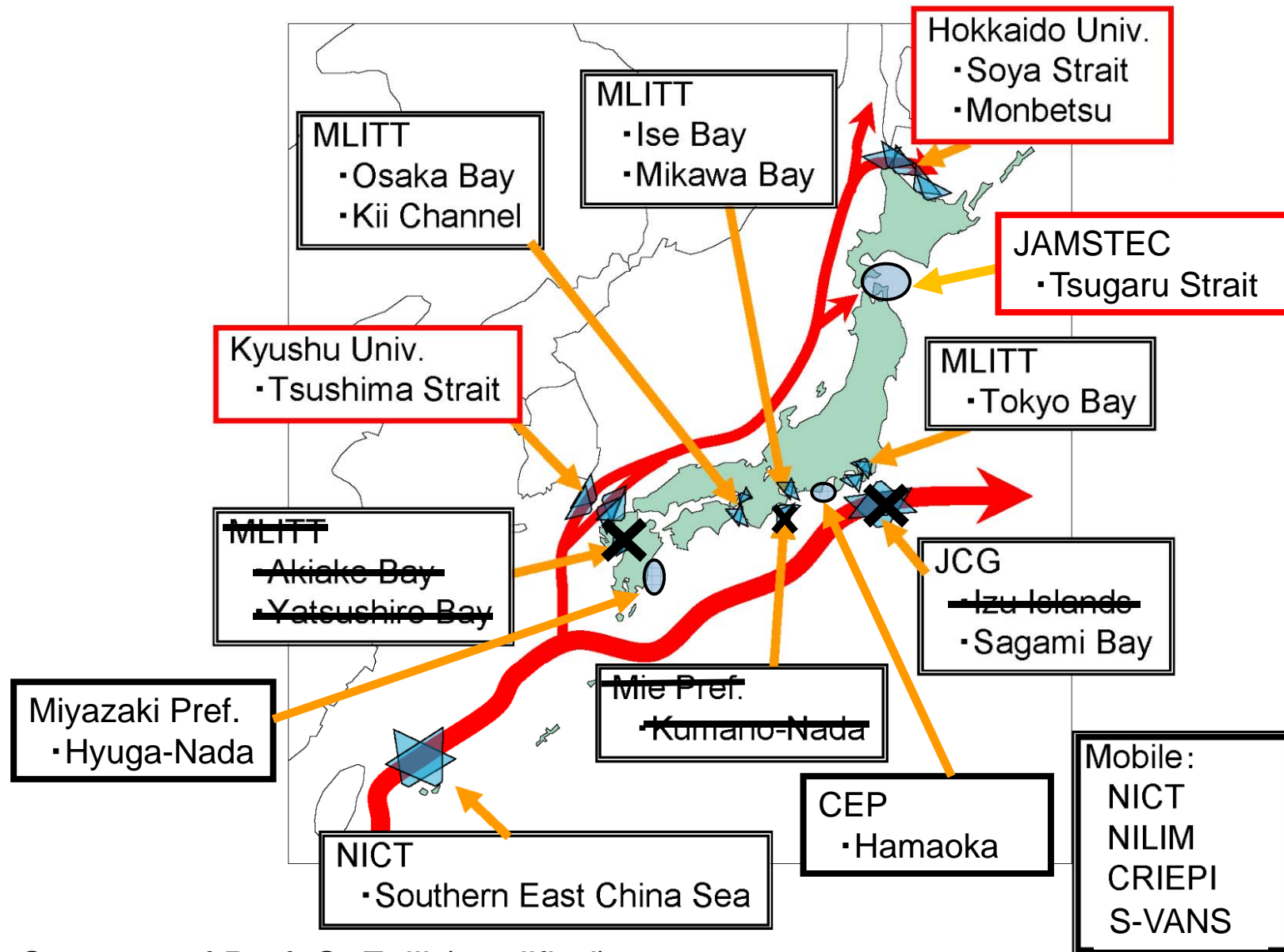IOC   jcomm   WMO OMM

Growth in the United States

Growth in Europe

HFR in Japan

MLITT
· Osaka Bay
· Kii Channel

MLITT
· Ise Bay
· Mikawa Bay

Hokkaido Univ.
· Soya Strait
· Monbetsu

JAMSTEC
· Tsugaru Strait

Kyushu Univ.
· Tsushima Strait

MLITT
· Tokyo Bay

~~MLITT~~
~~· Akiake Bay~~
~~· Yatsushiro Bay~~

JCG
~~· Izu Islands~~
· Sagami Bay

Miyazaki Pref.
· Hyuga-Nada

~~Mie Pref.~~
~~· Kumano-Nada~~

CEP
· Hamaoka

Mobile：
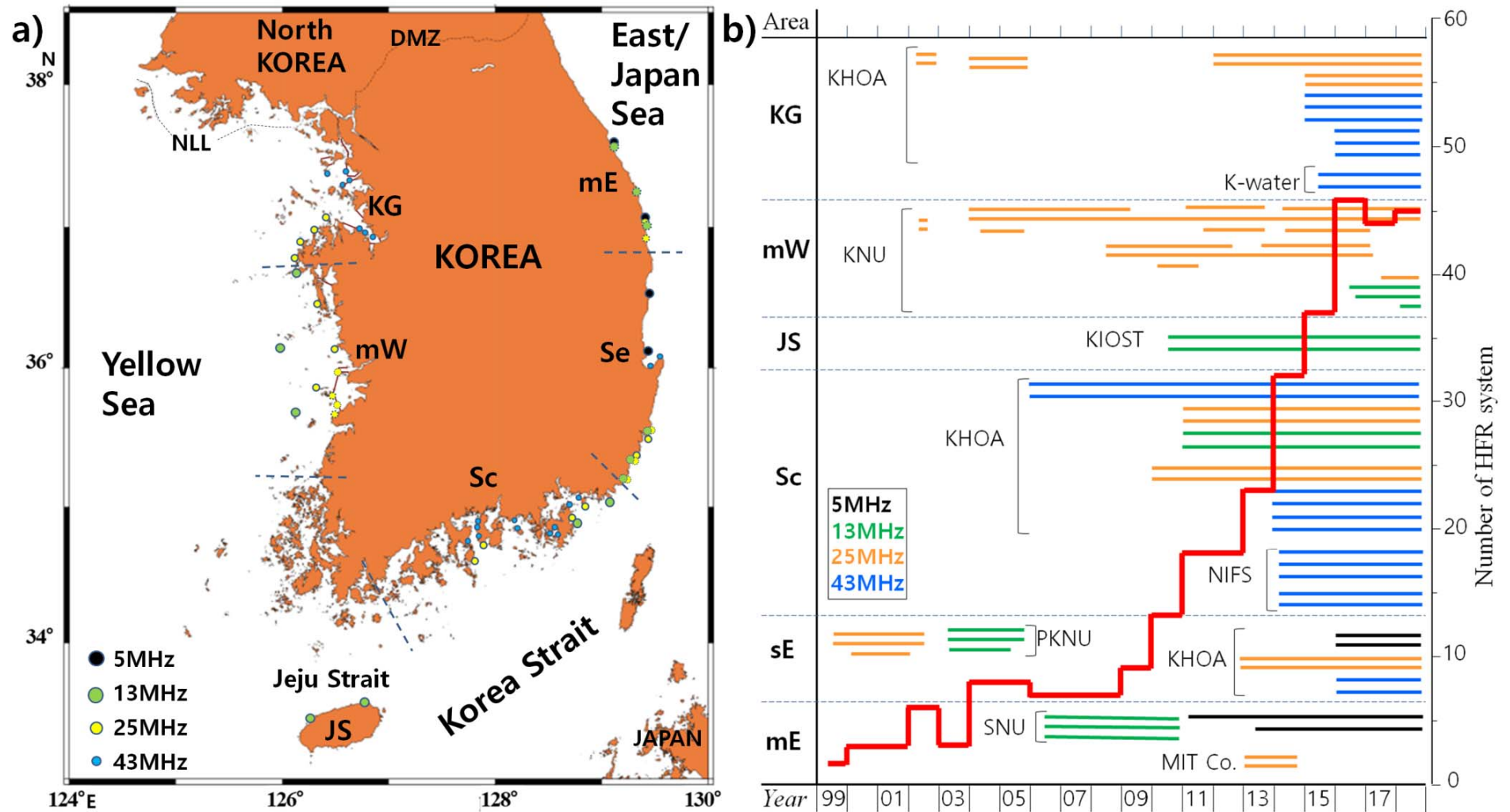 NICT
  NILIM
  CRIEPI
  S-VANS

NICT
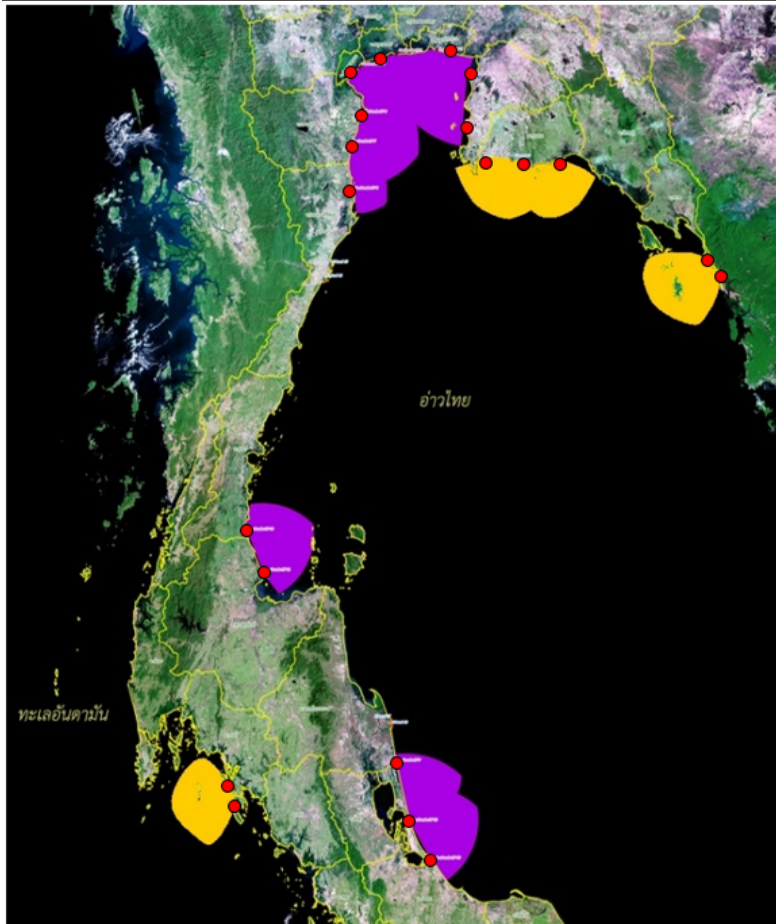· Southern East China Sea

Courtesy of Prof. S. Fujii (modified)
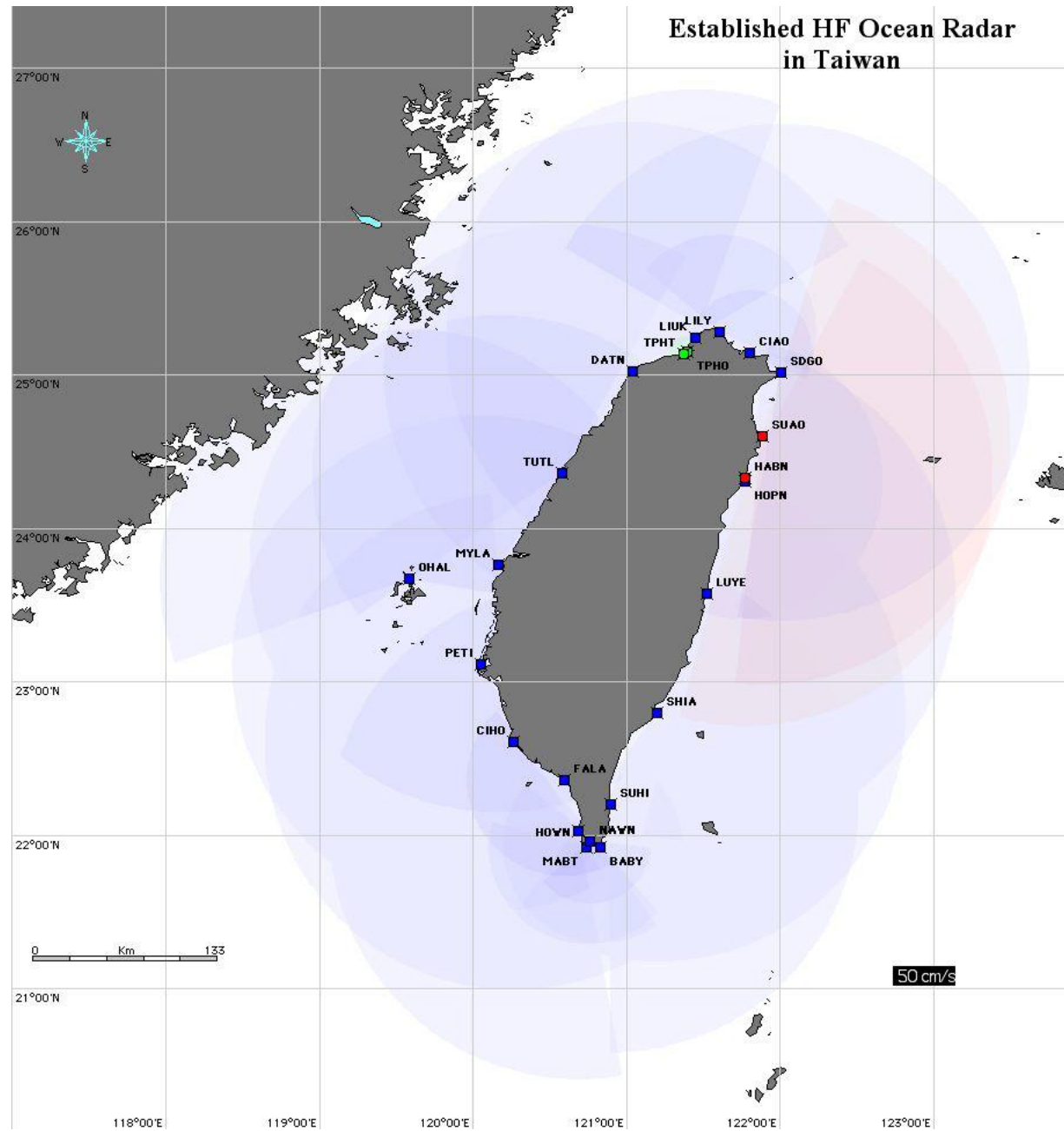
Growth in Korea

HFR in Thailand

Coastal radar stations (Purple is phase 1 and yellow is phase 2)

Picture of coastal radar station installed in the area

Established HF Ocean Radar
in Taiwan

Community White Paper on the Global HFR Network

Roarty H.et al., "The Global High Frequency Radar Network." *Frontiers in Marine Science*, 6:164. doi: 10.3389/fmars. 2019.00164, May 2019

Operational Integration - United States
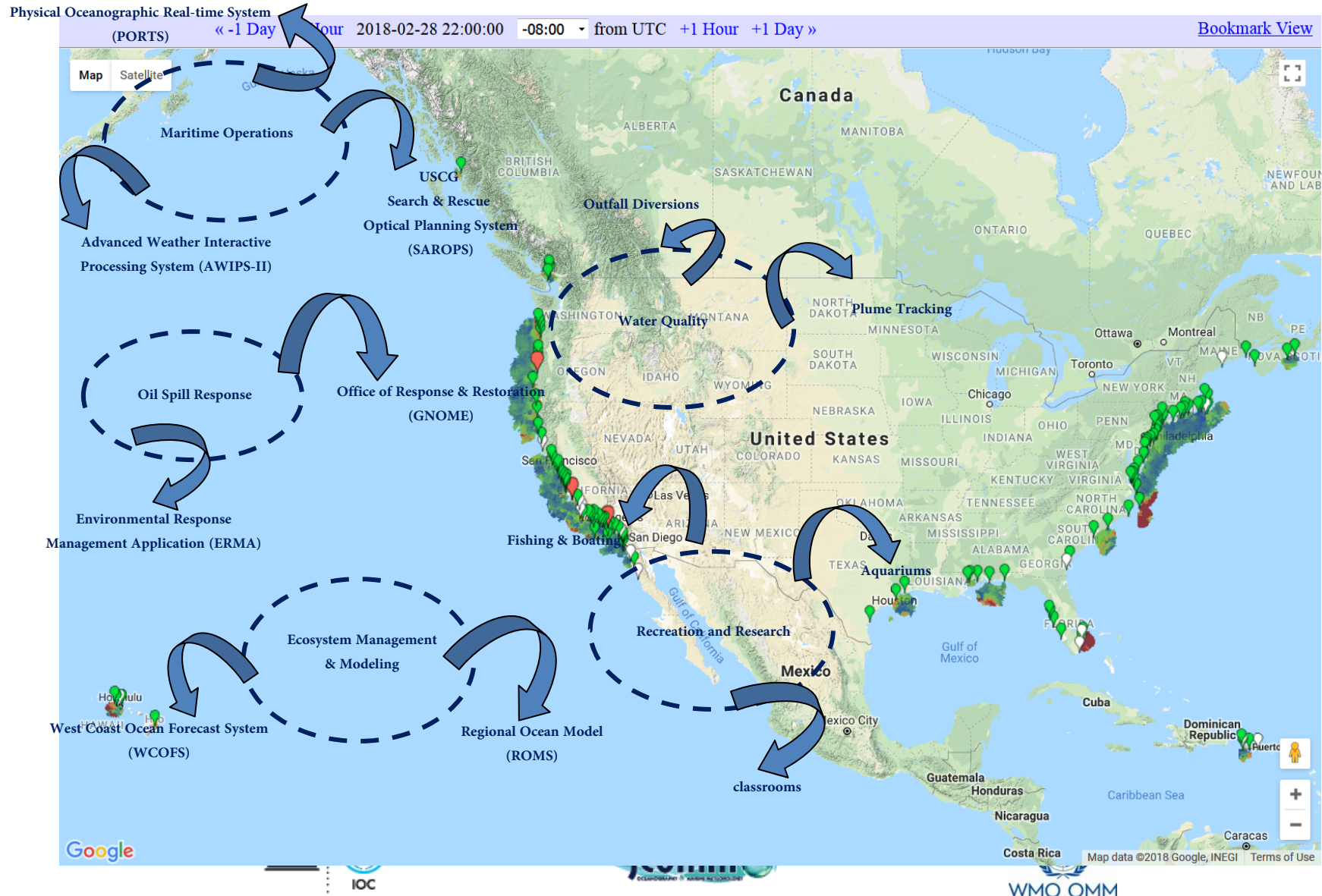
Network Update

- >350 stations operating in
- 35 countries with
- 9 countries sharing surface current data

http://global-hfradar.org
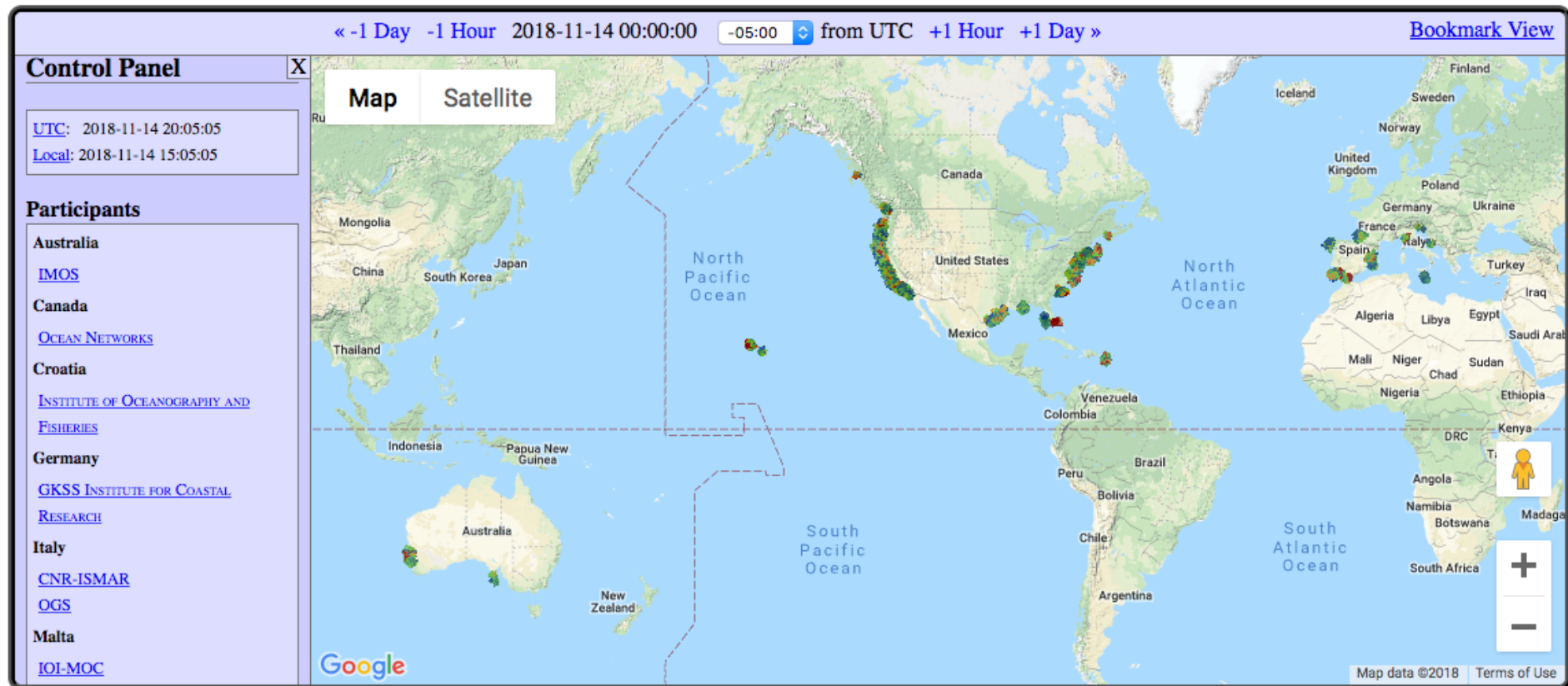
HF Radar – Surface Currents Data Sharing

	Country	Organization
1	Australia	Integrated Marine Observing System (IMOS)
2	Canada	Ocean Networks
3	Croatia	Institute of Oceanography and Fisheries
4	Germany	Helmholtz-Zentrum Geesthacht Centre for Materials and Coastal Research
5	Italy	CNR, Consiglio Nazionale delle Ricerche
		OGS, Istituto Nazionale di Oceanografia e di Geofisica Sperimentale
6	Malta	University of Malta, Physical Oceanography Unit (PO-Unit), International Ocean Institute-Malta Operational Centre (IOI-MOC)
7	Mexico	Observatorio de Corrientes Oceánicas MEXicanas (OCOMEX)
8	Spain	Puertos del Estado
		SOCIB, Balearic Islands Coastal Observing and Forecasting System
		Meteorological Agency (Euskalmet)
9	United States	Integrated Ocean Observing System (IOOS)
-	Republic of Korea	Korea Hydrographic and Oceanic Administration (KHOA)

Global Shared Data Repository – European Marine Observation and Data Network (EMODnet)
Global Shared Data Visualization – google map visualization

Opportunities for Coordination
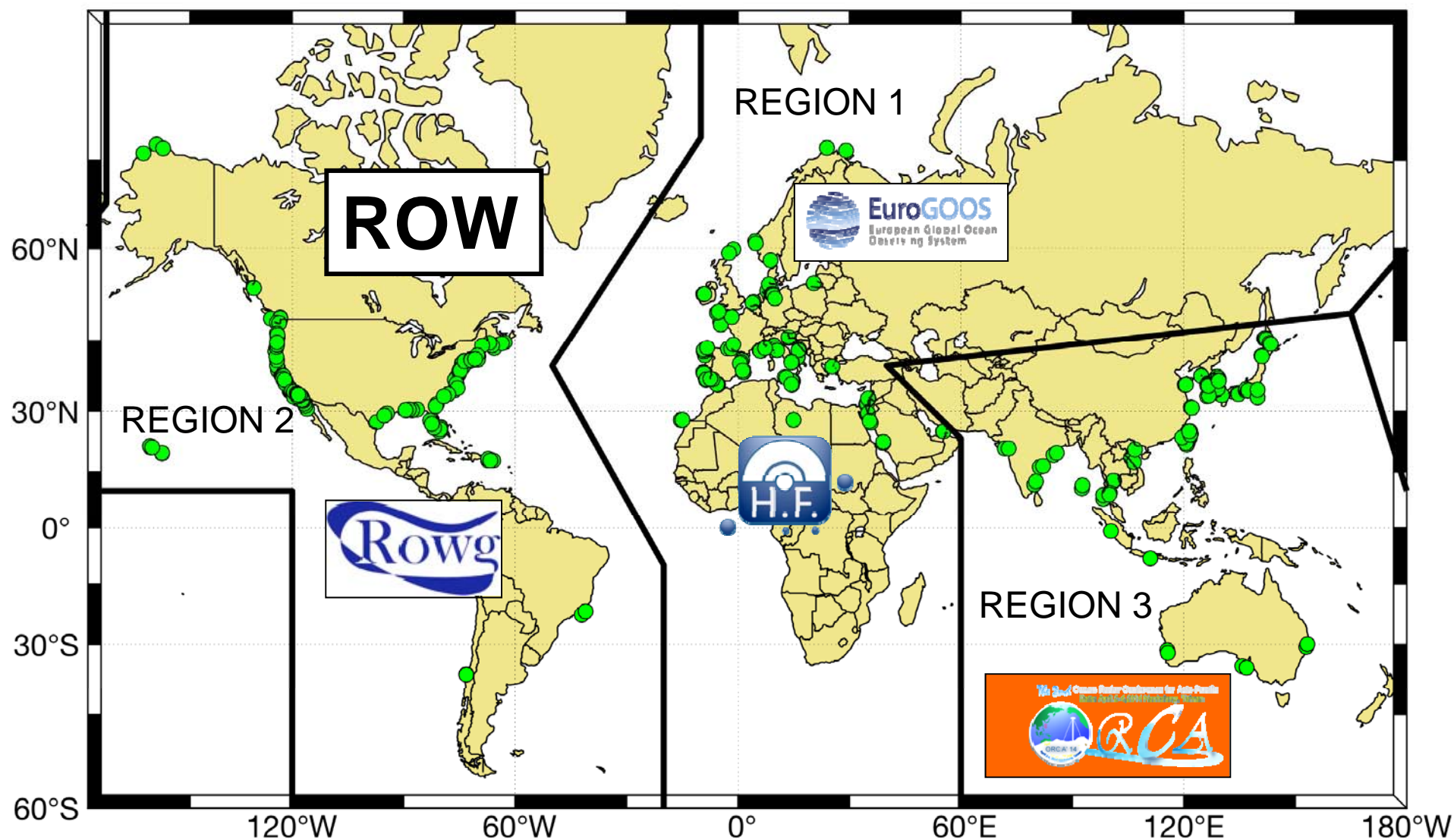
International Radiowave Oceanography Workshop (ROW)

Homepage for radiowaveoceanography.org

Home   Registration   Abstracts

ROW 2019   http://paduan.org/row/

Dear Colleagues:

We are pleased to announce two coordinated scientific meetings based on the use of high frequency (HF) radar for oceanography:

The International Summer School On Radio oceanography (ISSOR; 25-28 August 2019)The Radiowave Oceanography Workshop 2019 (ROW2019; 28-30 August 2019)

These events will take place back-to-back during this period in Victoria, B.C. CANADA. Our hosts will be Ocean Networks Canada at the University of Victoria.

Summer school on HF and X-band radars

ISSOR
International Summer School
On Radio-oceanography

👤 Login

WELCOME https://radarschool.sciencesconf.org/resource/page/id/5

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ISSOR'19

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In the framework of ANR HYD2M (P.I: A.-C. Bennis) concerning the impacts of wave-current interactions on tidal stream energy estimation, we plan to install four phased array HF radars (operated by Caen University), one VHF radar (operated by Caen University, CNAM-Intechmer and MIO) and one X-band radar (operated by DCNS) in Cap de la Hague to measure surface currents and sea states in Alderney race where the strongest tidal current in Western Europe occurs (up to 12 knots). It is a challenge to operate HF, VHF and X-band radars in such hydrodynamic conditions.

With this in mind, we have organised a summer school on HF and X-band radars.

Summary

- The Global High Frequency Radar Network is now expanding over 35 countries and 350 radars. 9 countries are sharing data via the global network (http://global-hfradar.org/).
- HFR technology can be found in a wide range of applications: for marine safety, oil spill response, tsunami warning, pollution assessment, coastal zone management, tracking environmental change, numerical model simulation of 3-dimensional circulation, and research to generate new understanding of coastal ocean dynamics.
- The Global HFR Network is an example of national inter-agency and inter-institutional partnerships for improving oceanographic research and operations.
- As global partnerships grow, these collaborations and improved data sharing enhance our ability to respond to regional, national, and global environmental and management issues.
- An active global HFR network is crucial for pushing forward HFR scientific developments, promoting training activities, encouraging the integration of the HFRs into operational maritime monitoring and environmental assessment, and boosting networking toward an integrated, evolving and sustained HFR global network over the next decade.

Questions?

Send them to Hugh, hroarty@marine.rutgers.edu