The 10th GEOSS Asia-Pacific Symposium

THE STATUS OF OCEANOGRAPHIC DATA AND INFORMATION MANAGEMENT IN VIETNAM

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Institute of Oceanography,
Vietnam Academy of Science and Technology (VAST)

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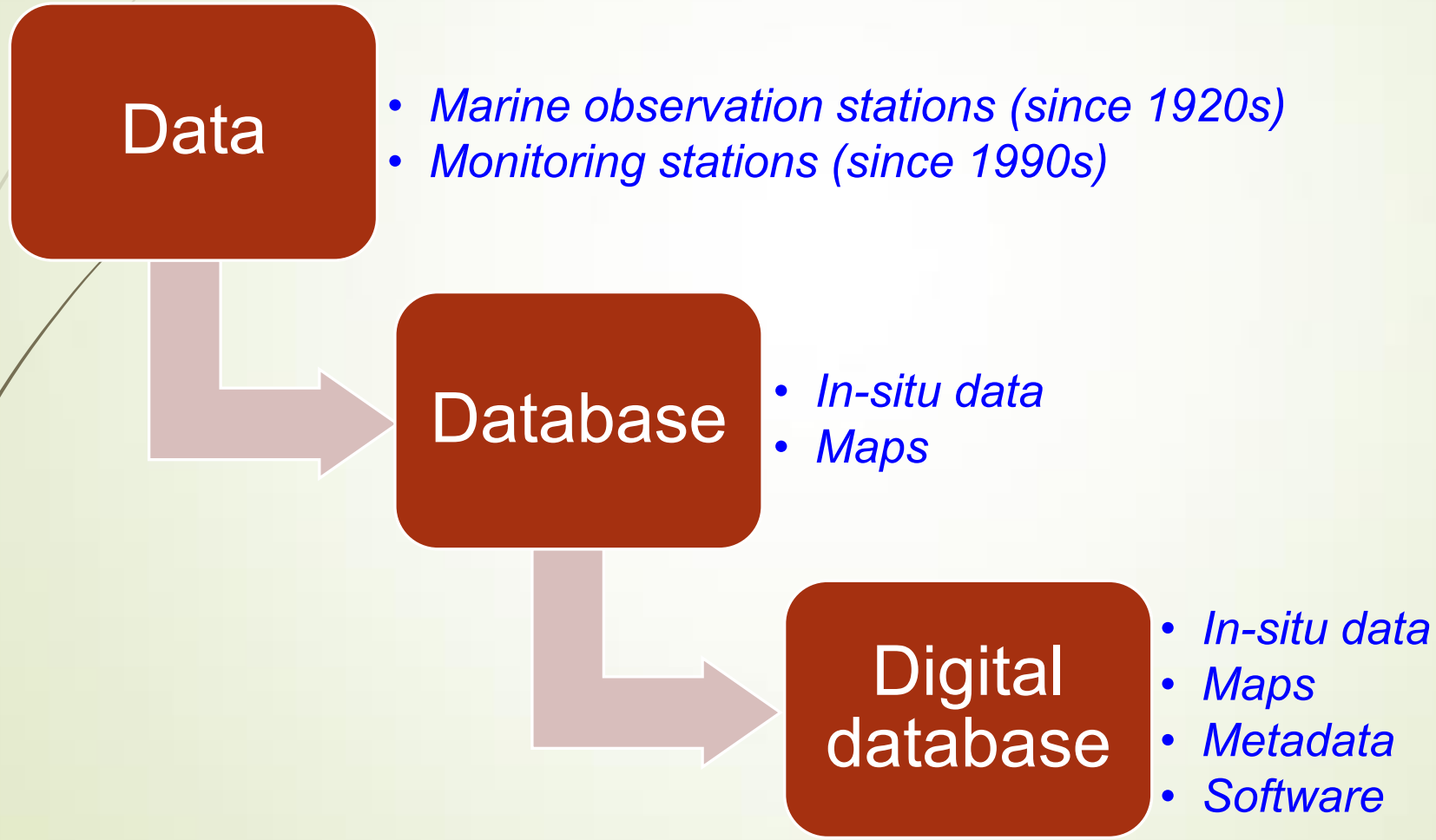
Content

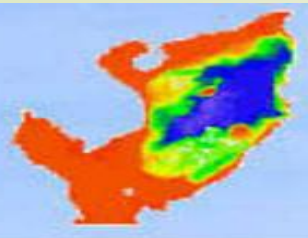
- *Development of Oceanographic Database in Vietnam (VNOD)*
- *SWOT analysis of VNOD*
- *How we do for exchanging OD*
  - *Needs from IODE/IOC and …*
- *Outlooks*

Development of Oceanographic Database in Vietnam

Story of oceanographic database in Vietnam



Oceanographic database - VNOD



VIỆN KHOA HỌC VÀ CÔNG NGHỆ VIỆT NAM

VIỆN HẢI DƯƠNG HỌC

Cổng thông tin dữ liệu hải dương học

THÔNG TIN DỮ LIỆU BIỂN

Trang chủ ▸ Đăng nhập ▸ Tìm kiếm ▸ Cập nhật ▸ Thông tin bản đồ ▸ Trao đổi ▸ Liên hệ

Cổng thông tin dữ liệu hải dương học được xây dựng để:

"Cung cấp và trao đổi thông tin dữ liệu biển"

Nhằm thống kê thông tin dữ liệu biển hiện có tại Trung tâm Dữ liệu và GIS-Viễn thám, bao gồm của các đề tài nhà nước (KHCN 06.01, KC 09.01), bộ ATLAS Biển đông 2000, các đĩa dữ liệu của trung tâm dữ liệu thế giới (WOD – World Ocean data), các thông tin bản đồ đã thu thập được từ đề tài cơ sở của phòng năm 2007, và các sản phẩm khác ...

Tập các thông tin dữ liệu hiện có:

Giới hạn tọa độ:

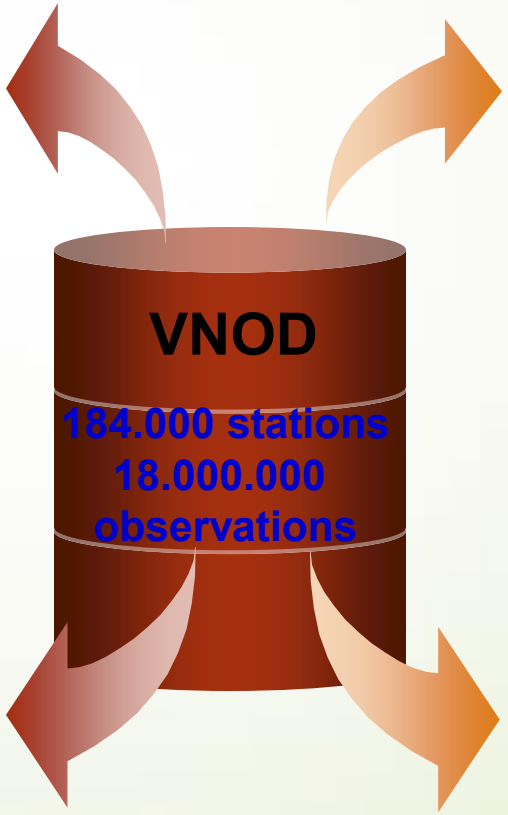
Kinh độ:	99 °E đến 125 °E
Vĩ độ:	5 °S đến 25 °N

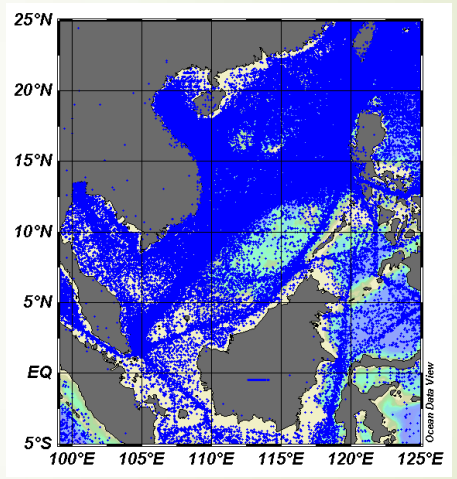
VNODC (Vietnamese National Oceanographic Data Center)

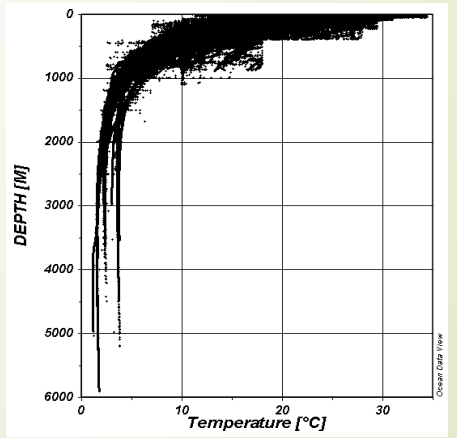
Tổng số trạm:	26667 trạm
Tổng chuyến:	773 chuyến
Thời gian:	01/12/1934 - 16/12/2002
Loại dữ liệu:	31 loại

VIETNAMESE OCEANOGRAPHIC DATABASE (VNOD-2017)

THE AVAILABLE OCEANOGRAPHIC DATABASE OF BIEN DONG





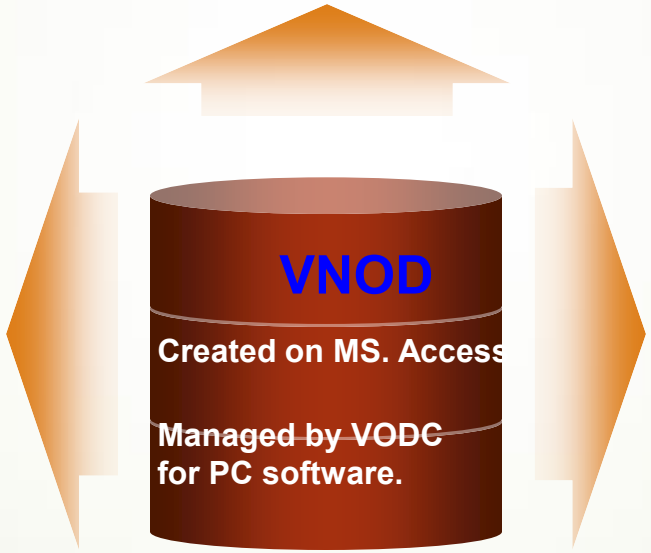


VNOD

The main result of the two national projects KHCN09.01(1996-2000), KC09.01(2001-2004) and others

Objective

Collect and manage oceanographic data from various marine research institutes and organizations concerned in Vietnam and some overseas oceanographic data centers



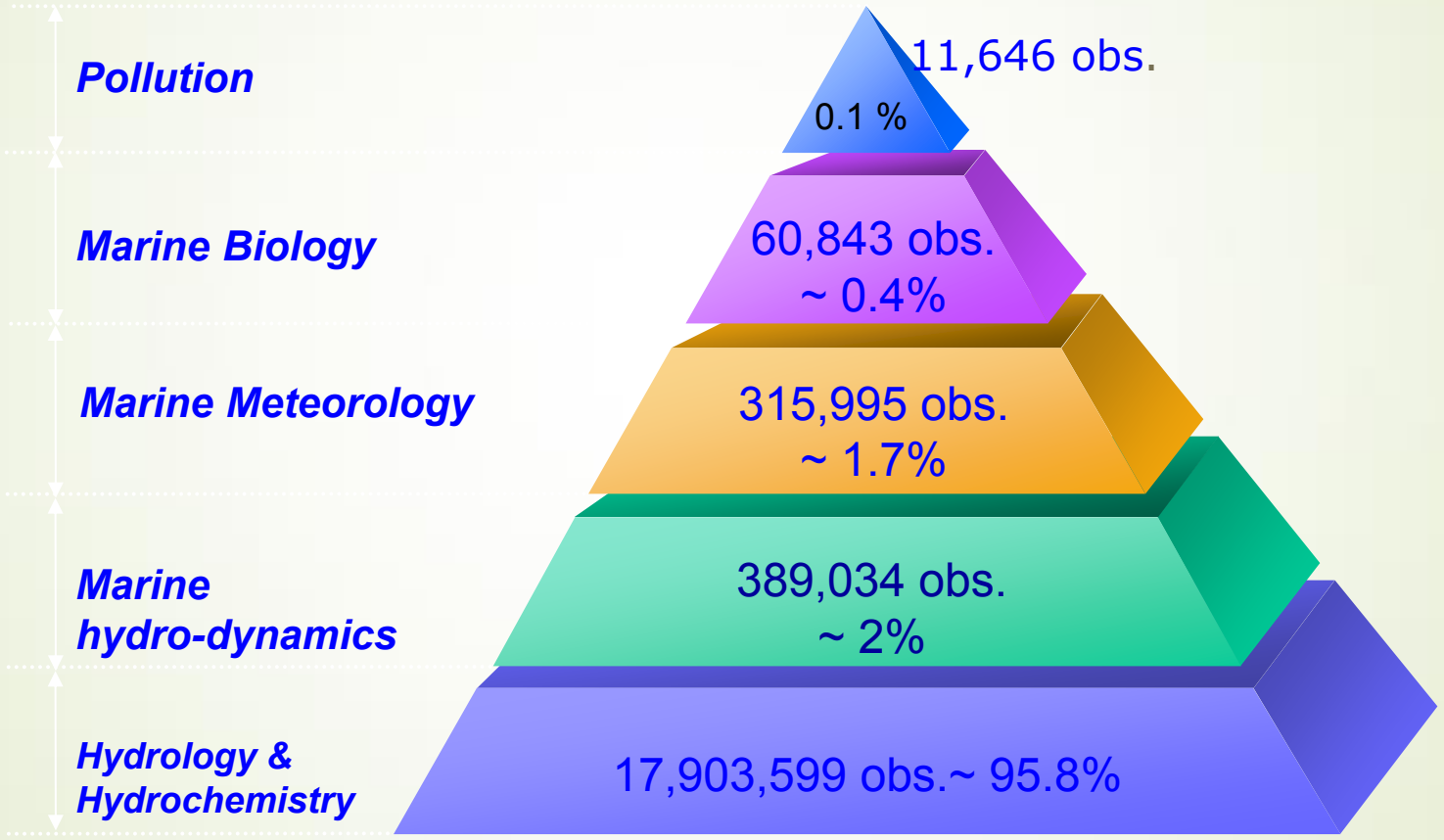
Volume of data

About:
184,000 stations,
18,000,000 observations
from 1817 up to know

THE SCOPE OF DATA MANAGEMENT IN VNOD

Type and volume of data available in VNOD

- 5 data types stored and managed in VNOD.
- Most of them are hydrodynamical and hydrochemical observed data.



The diagram described the distribution of 5 data fields

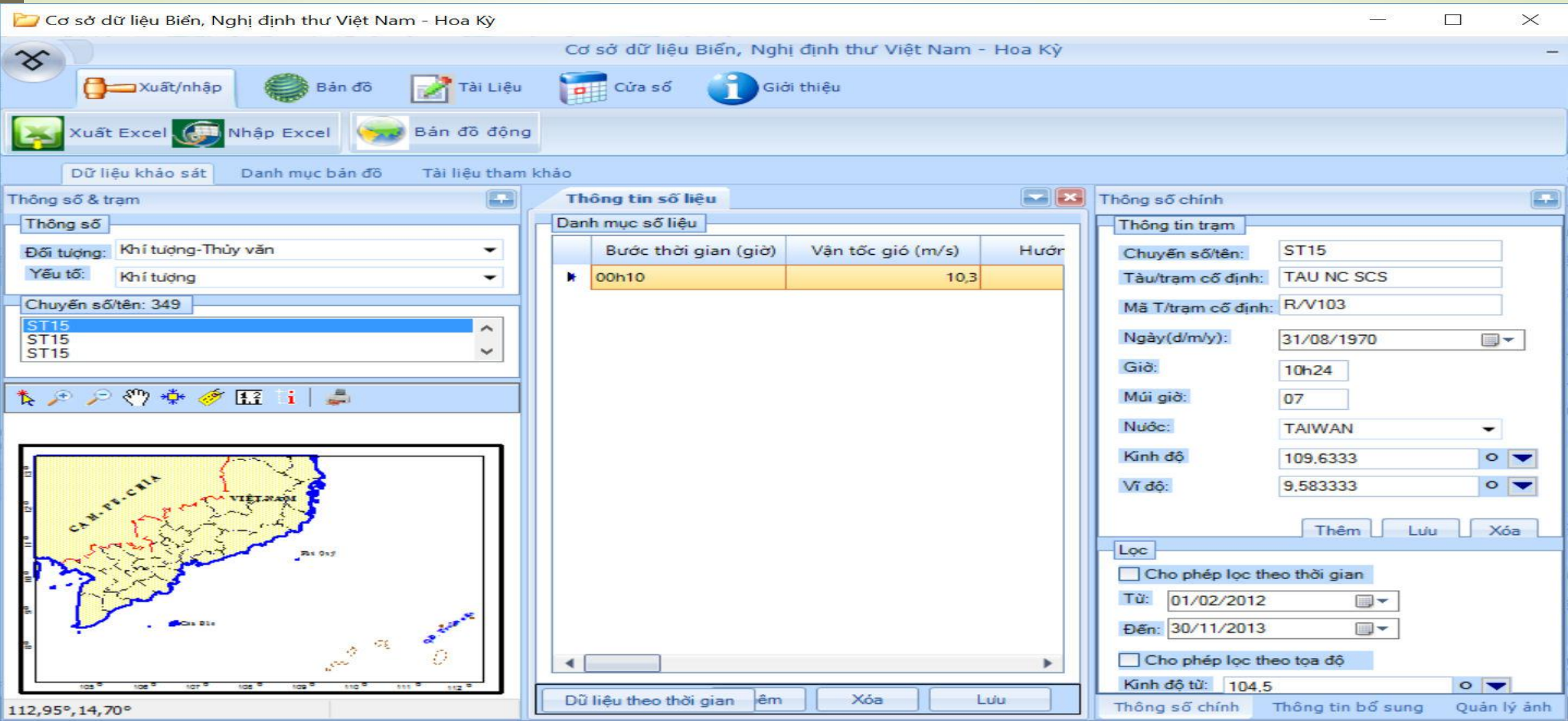
DATA QUALITY IN VNOD

The results of data quality control in VNOD								
Quality value	Number of observations							
	Temp.	Salinity	Oxygen	Phos.	Silicate	Nitrate	pH	Chlo.
0	8,883,567	4,916,837	243,943	55,169	41,694	23,204	57,490	4,281
1	358,914	259,528	4,263	969	1,072	349	1,110	67
2	9,559	15,015	11	392	333	164	253	11
3	23,618	3,648	0	2		0	1	0
4	2,294,931	263,262	X	1,257	X	2,201	105	X
5	331,453	6,031	X	504	X	515	2	X
6	35,590	10,886	X	60	X	257	63	X
7	40,122	137	X		X	4		X
Total	11,977,754	5,475,344	248,217	58,353	43,099	26,694	59,024	4,359
accepted value(%)	75 %	90 %	98 %	95 %	97 %	87 %	97 %	98 %

0: accepted value
1: failed observed depth check
2: range outlier(Outside of broad range check)
3: failed depth and range checks
4: failed gradient check
5: failed depth and gradient checks
6: failed gradient and range checks
7: failed depth, gradient and range checks

Comment: According to the results of data quality control are shown in the above table, with more than 90% of the data are good. This shows the data source in VNOD is reliable.

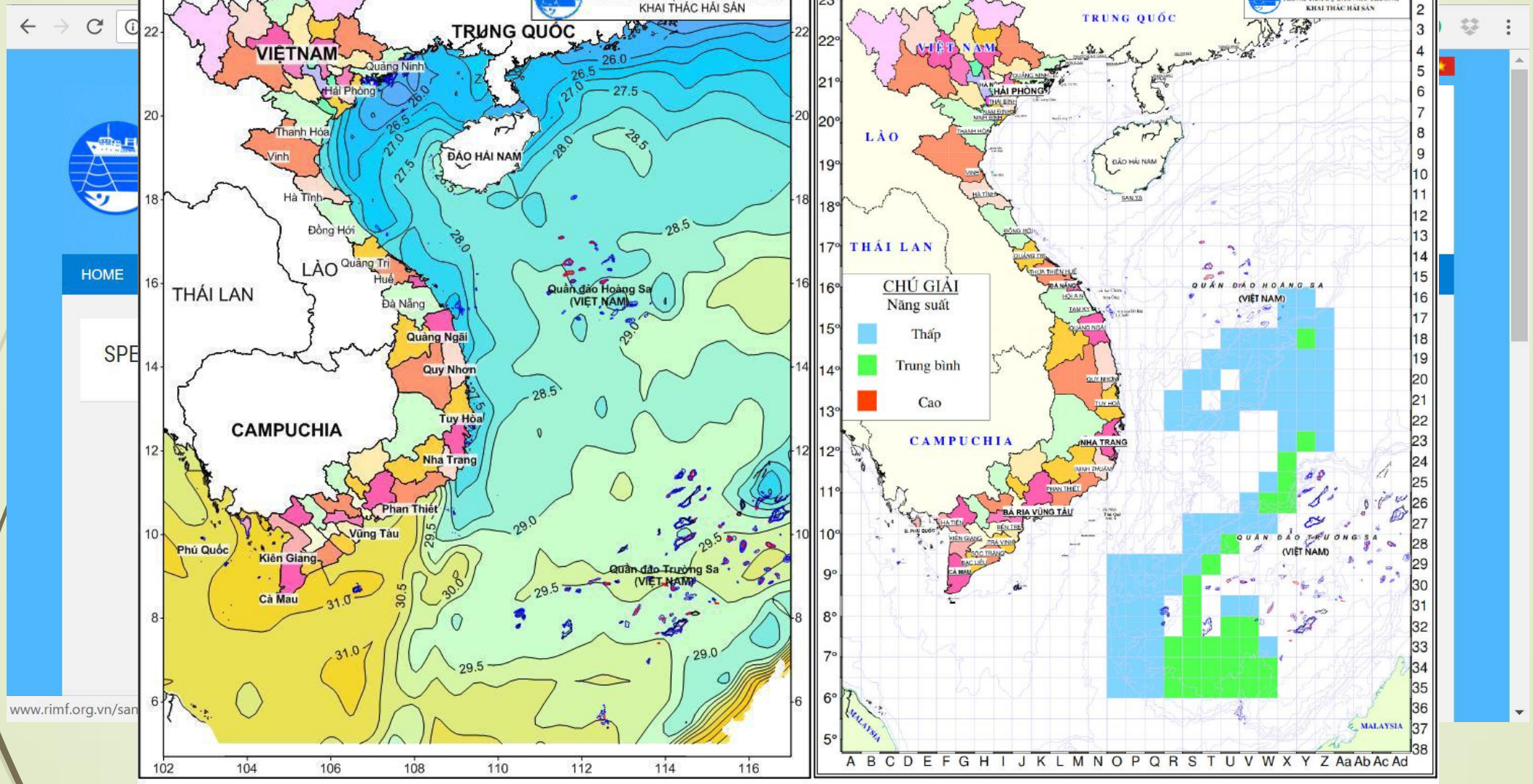
Some other databases from National Projects in IO (2011-2017)
VN-US cooperative Project: 2012 - 2015



Some other databases from National Projects in IO (2011-2017)
Spacial Project (2014 - 2016)

Oceanographic database MORE

http://www.rimf.org.vn/
MARD



OceanDoc

www.oceandocs.org/handle/1834/5352

ODINWESTPAC was set up primarily to provide effective capacity building framework, to promote regional collaboration in marine data and information and products sharing, to develop cooperation with other ODINs and international and regional projects/programs, and to provide data and information services mainly for the WESTPAC member states and other users. For more information see http://www.odinwestpac.org/

Sub-communities within this community

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Japan [0]
New Zealand [0]
Korea (republic of) [0]
Malaysia [0]
Thailand [0]
Philippines [83]
Vietnam [116]

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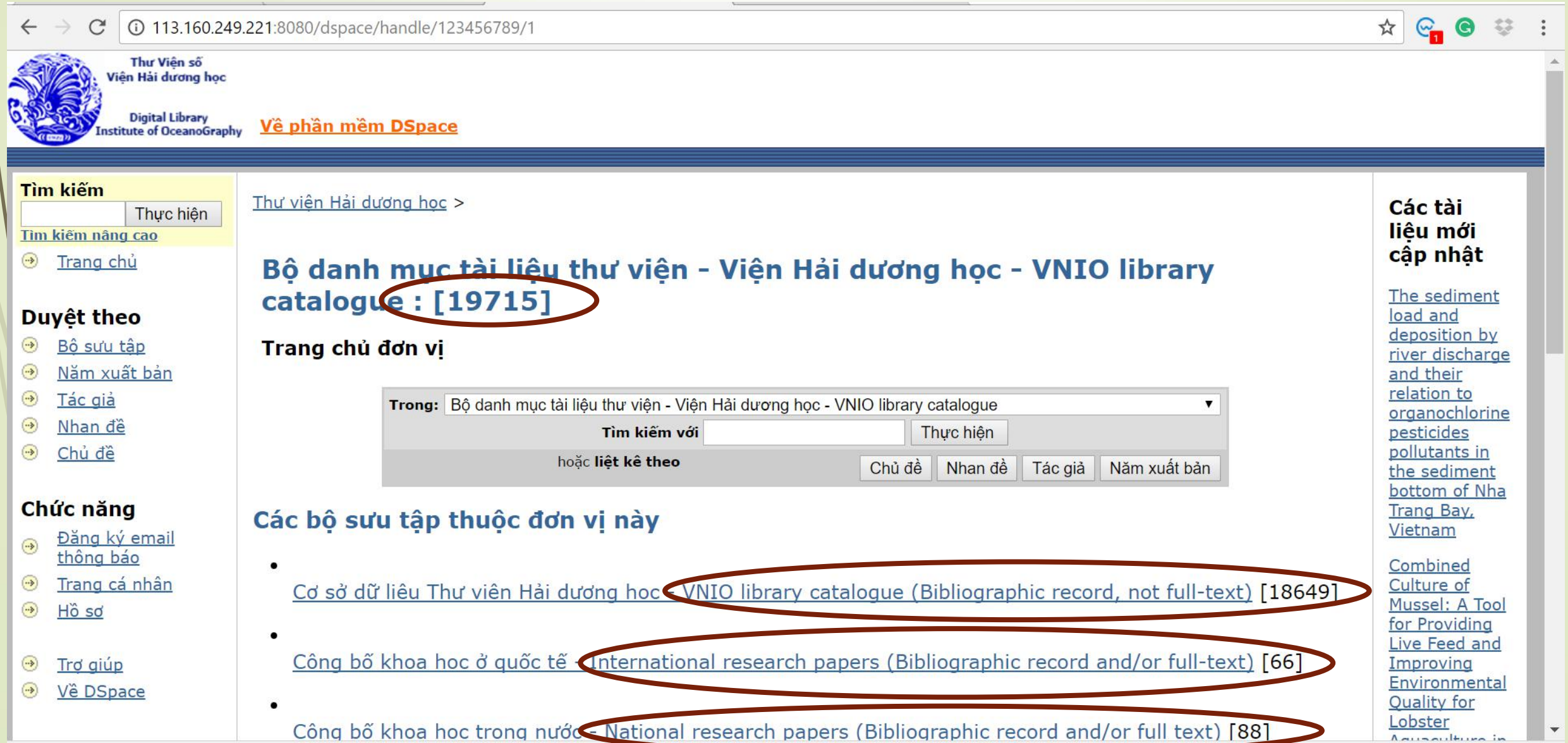
Dspace for marine library



Sources of Oceanographic Data

- In-situ data
- Remote sensing data
- Oceanographic in oversea
- Reanalysis data

In-situ data
Marine Monitoring station

VNOD in Vietnam from 2 national Projects

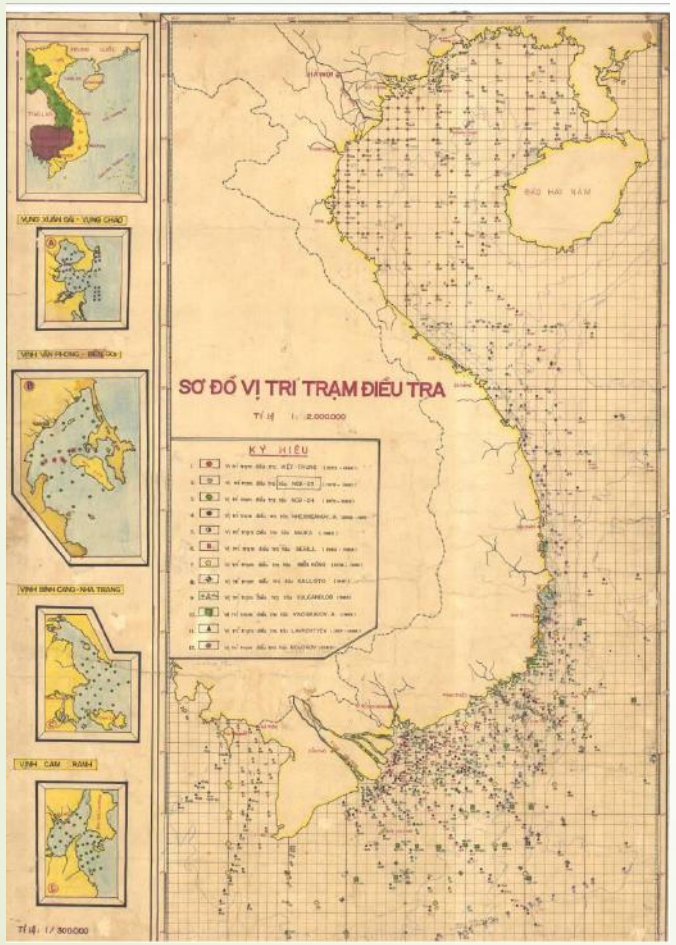
No	Organization	Project KHCN-06.01 (To 1997)			Project KC-09.01 (1997- 2000)		
		No survey trips	Stations	Paramet-ers	No survey trips	Stations	Paramet-ers
1	Institute of Oceanography	830	48208	70	110	6193	50
2	Institute of Marine Environment and Natural Resources	82	1874	41	0	0	0
3	Institute of Marine Geography	02	-	-	0	0	0
4	Sub-Institute Marine mechanics	172	2046	45	0	0	0
5	University of Sciences	27	3234	56	0	0	0
6	Marine Hydro-Meteorological Center	33	1517	22	15	1945	20
7	Center for Hydro-Meteorological Center in the south	54	312	20	0	0	0
8	Seafood Research Institute	60	2915	6	99	4265	12
10	Petroleum Institute	47	1721	17	8000	28723	04
11	Confederation Minerals Marine Geology	25	5500	27	2515	8671	13
12	The National Marine Program	36	8764	-	10	-	-
	Total	**1368**	**76091**		**10749**	**49797**	

Observed data

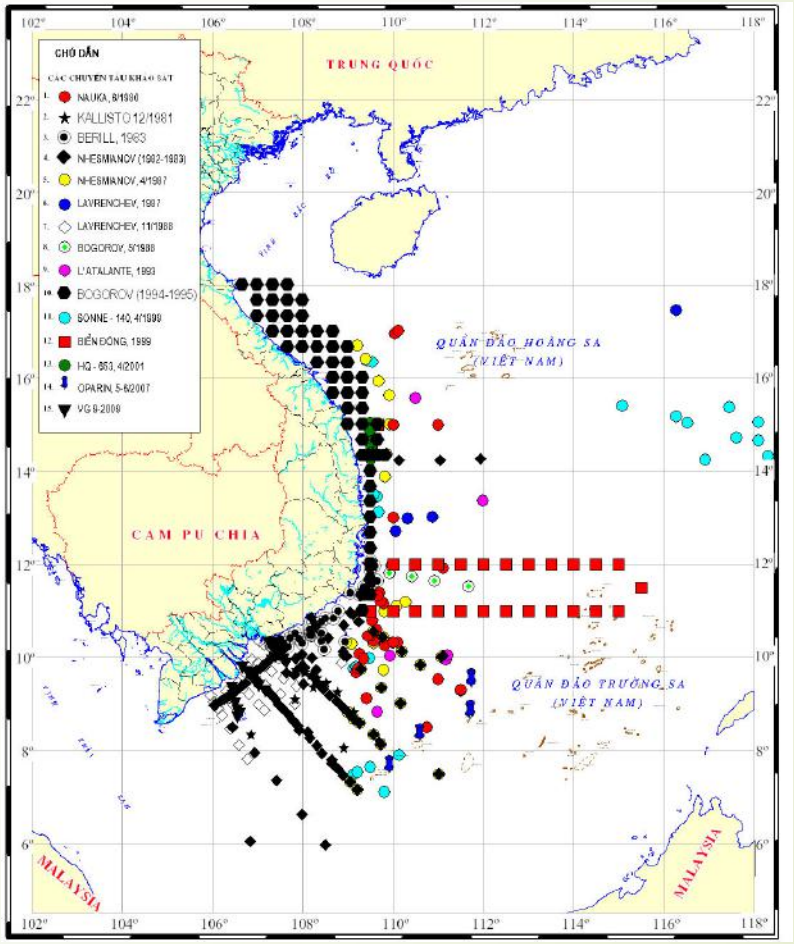
- ***Obs. data in Vietnam (1999-2008): 4 695 654***
- ***Obs. data from other countries in SCS (2003-2008): 5 324 751***
- ***Marine Hydro-Meteorology:***
  - *Coastal waters: 224 487*
  - *R/S: 240 241*
  - *Buoy: 366 600*
  - *Obs. Stations: 23 981 317*

In-situ marine stations

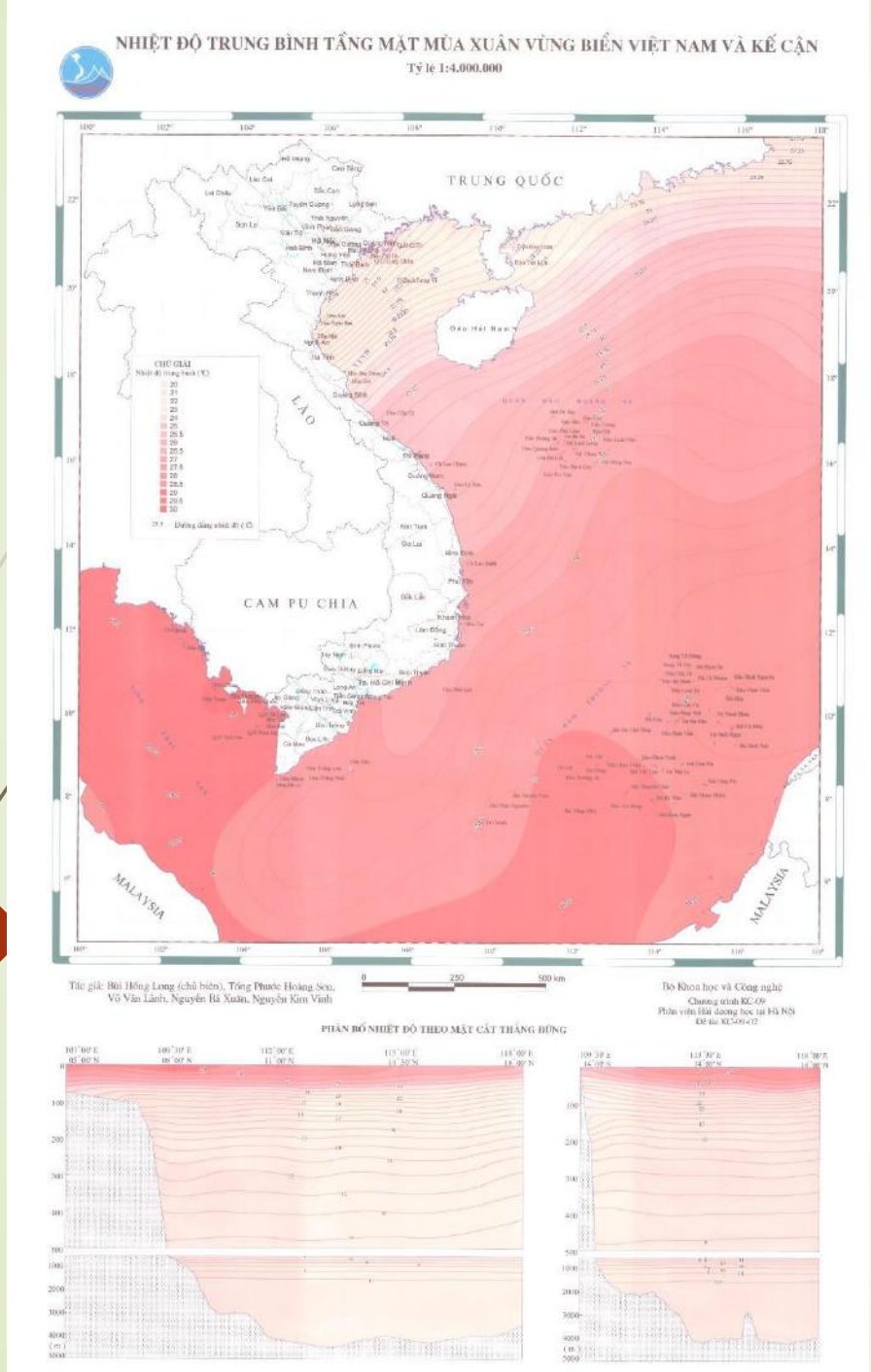
1976-1988



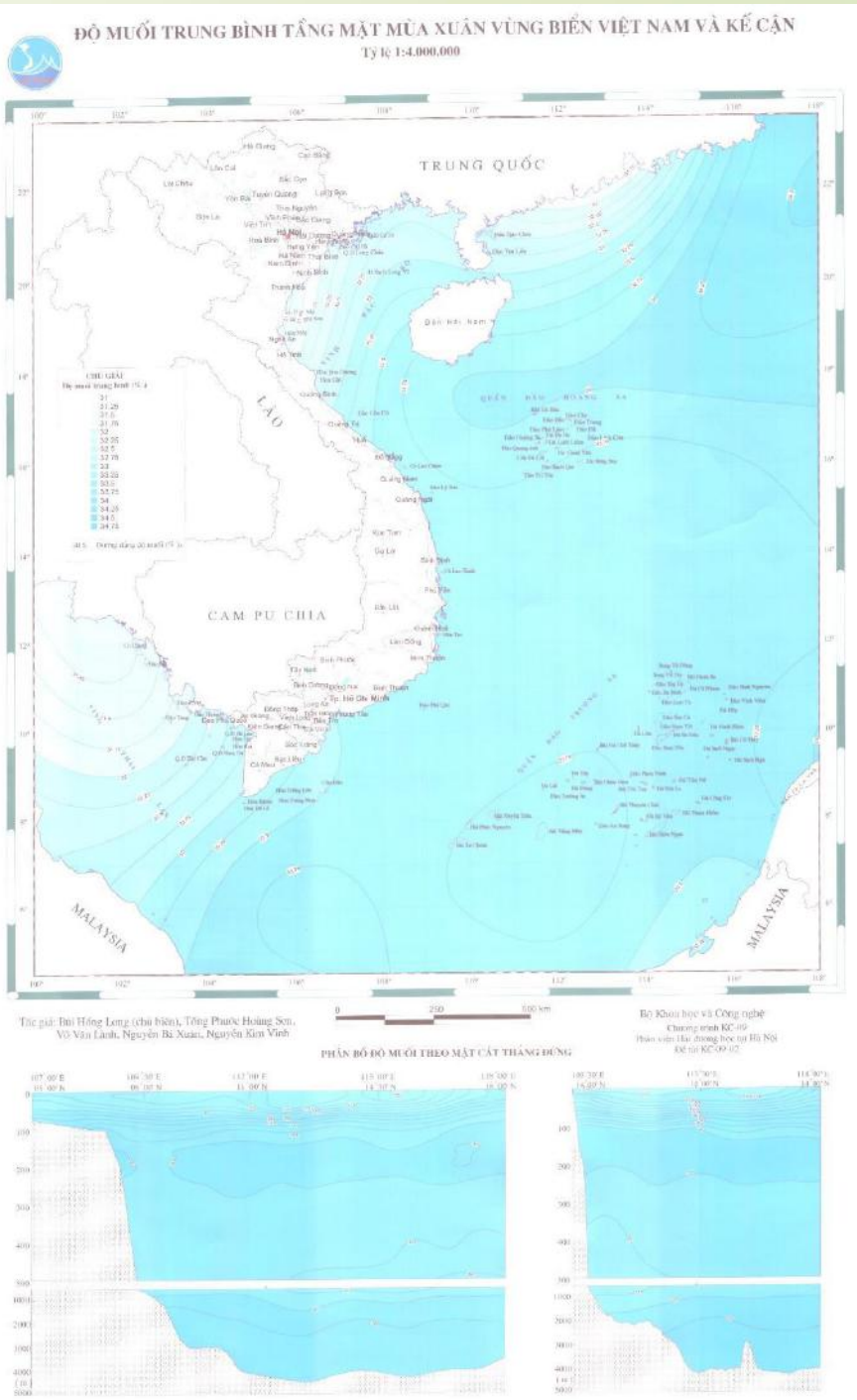
1980-2009



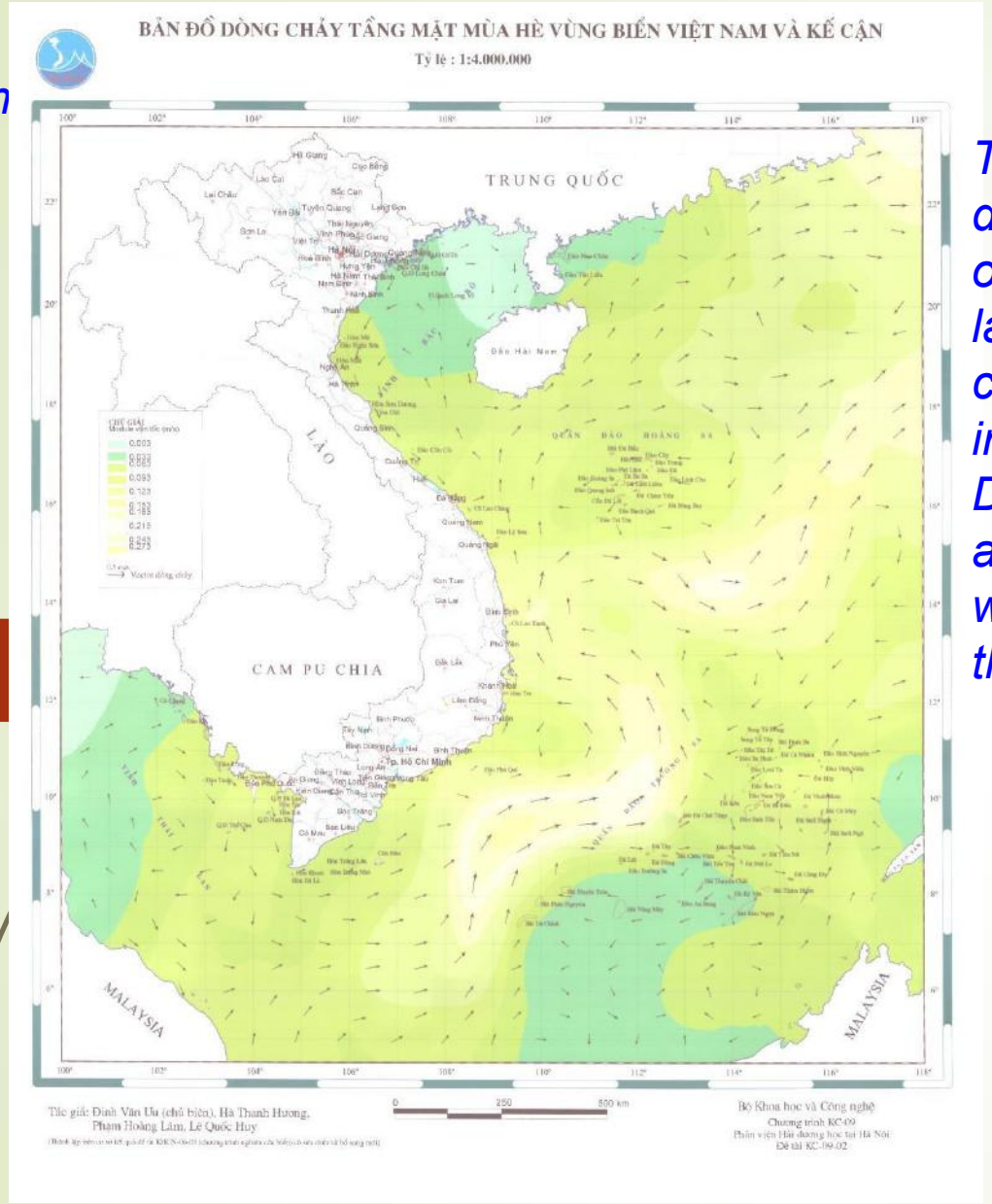
The distribution of surface layer temperature in BIEN DONG & adjacent waters in the Spring



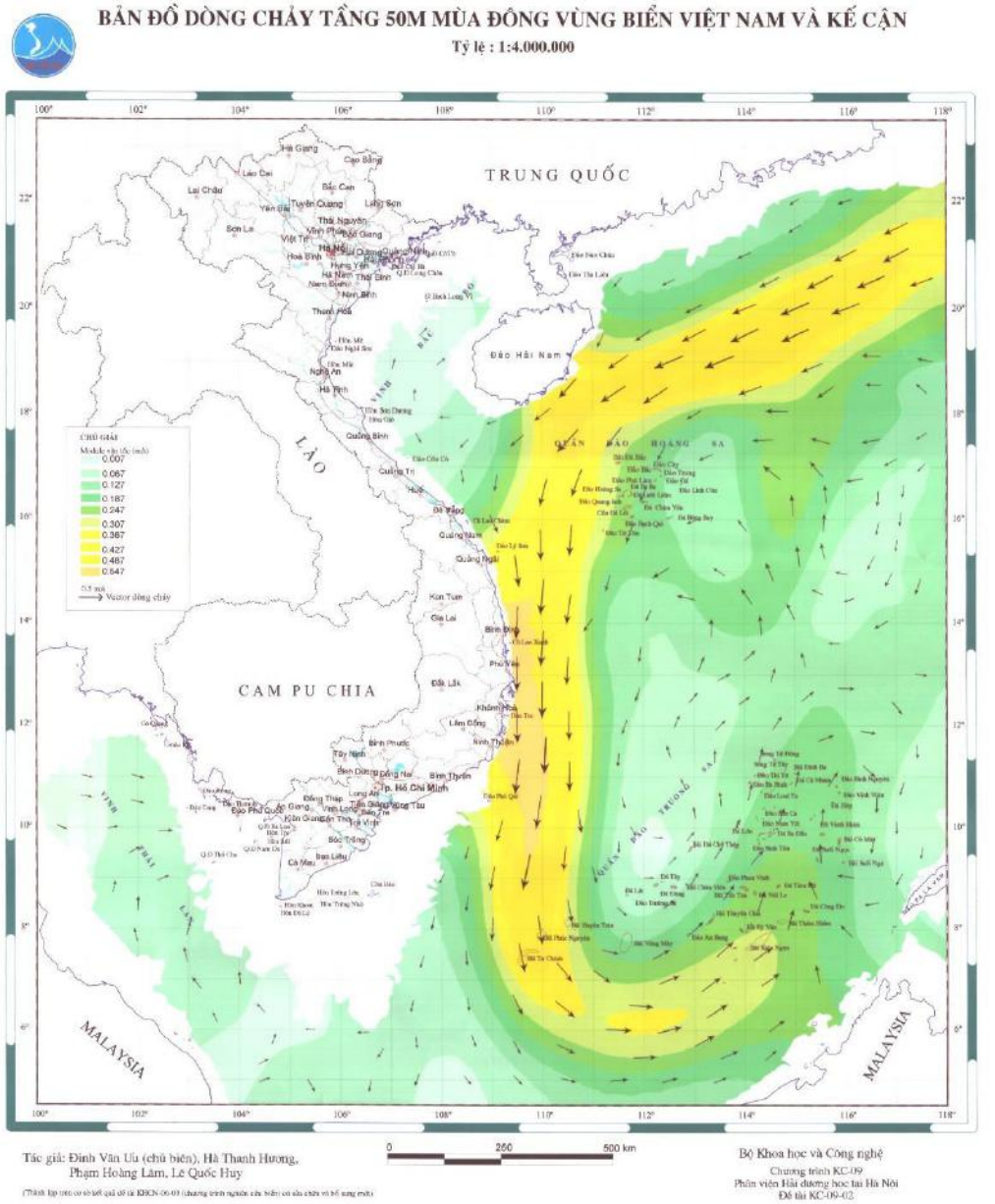
The distribution of surface layer salinity in BIEN DONG & adjacent waters in the Spring



The distribution of surface layer circulation in BIEN DONG & adjacent waters, in the Summer



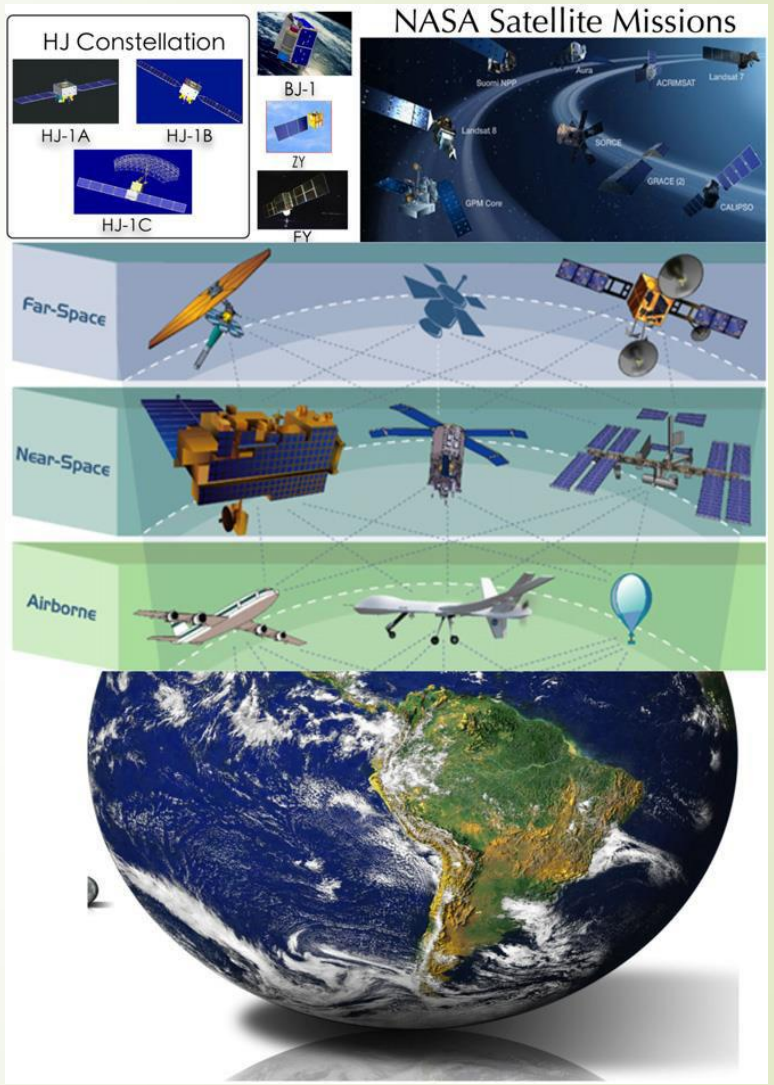
The distribution of 50m layer circulation in BIEN DONG & adjacent waters, in the Winter



Remote sensing data

Remote sensing = big data

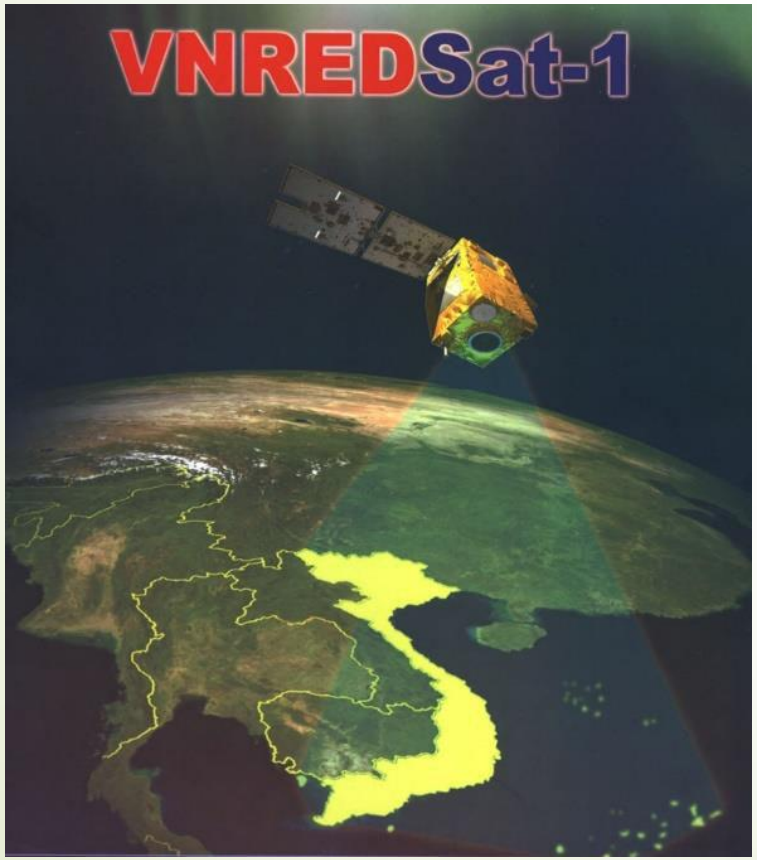
Satellites	Velocity (Mbps)	Volumes (GB/Day)	Volumes (TB/Year)
HJ-1B	60	57	20.32
HJ-1A	120	114	40.63
ZY-03	900	498.38	176.22
HJ-1C	320	187.5	66.83
ZY-02C	320.00	175.78	62.66
SPOT-4	50.00	10.99	3.92
LANDSAT5	85.00	28.02	9.99
RADASAT-2	105.00	57.68	20.56
RADASAT-1	105.00	57.68	20.56
SPOT-5	100.00	54.93	19.58
ENVISAT	100.00	32.96	11.75
IRS-P6	210.00	46.14	16.45
LANDSAT8	440.00	241.70	86.15
Total	3712.98	2089.06	574.6

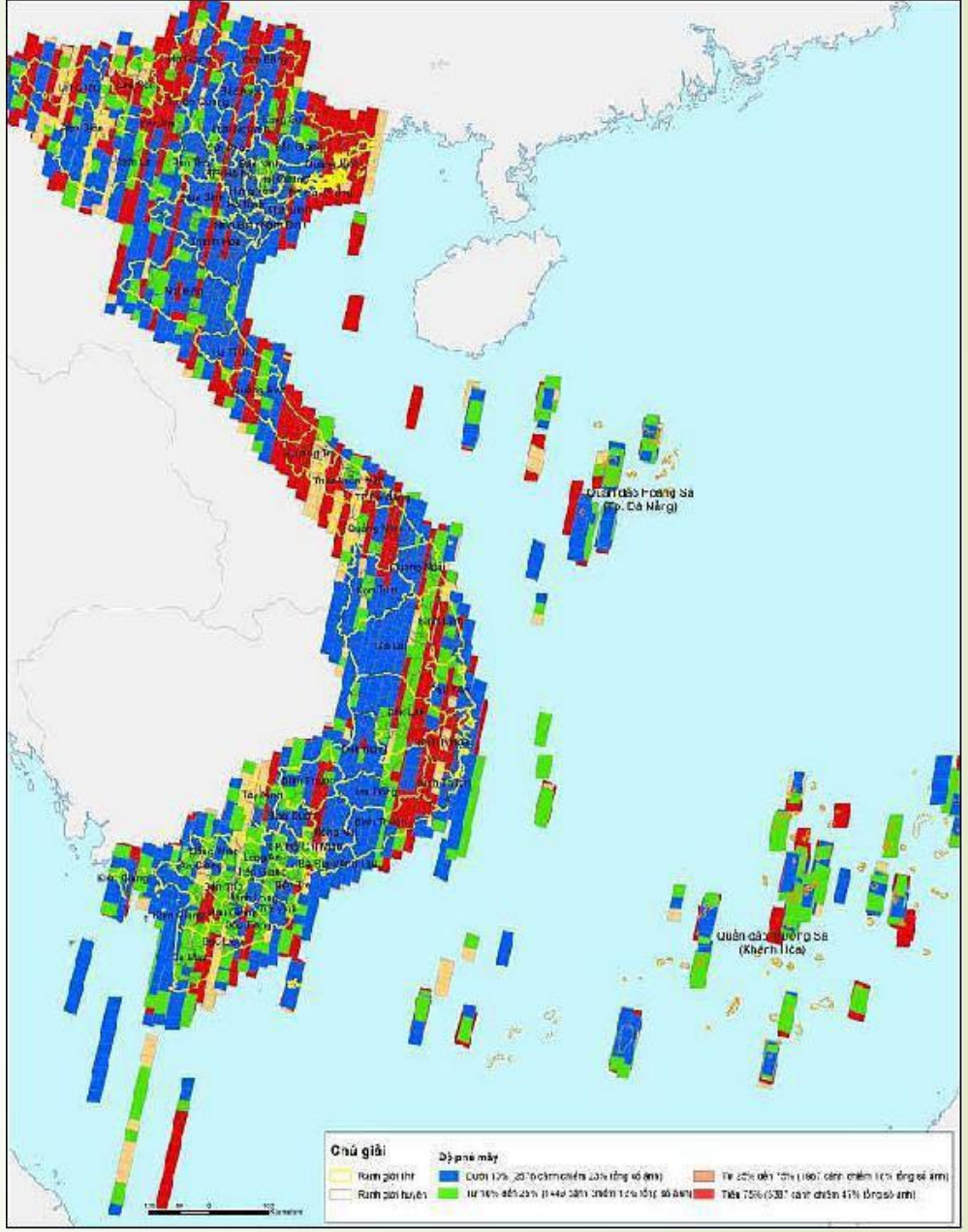


(Ma et al., 2015. Future Generation Computer Systems 51, 47–60)

Vietnamese Satellites

- *VNREDSat-1 (2013)*
- *LOTUS coming soon*
- *Others coming*





VNREDSat-1 over Vietnam as of October 31, 2015
(image credit: STI, VAST)

Oceanographic data in oversea databases

WOD, IODE/IOC, JODC,..

http://pacificinfo.ru/en,

www.jodc.go.jp

http://disc.sci.gsfc.nasa.gov/giovanni

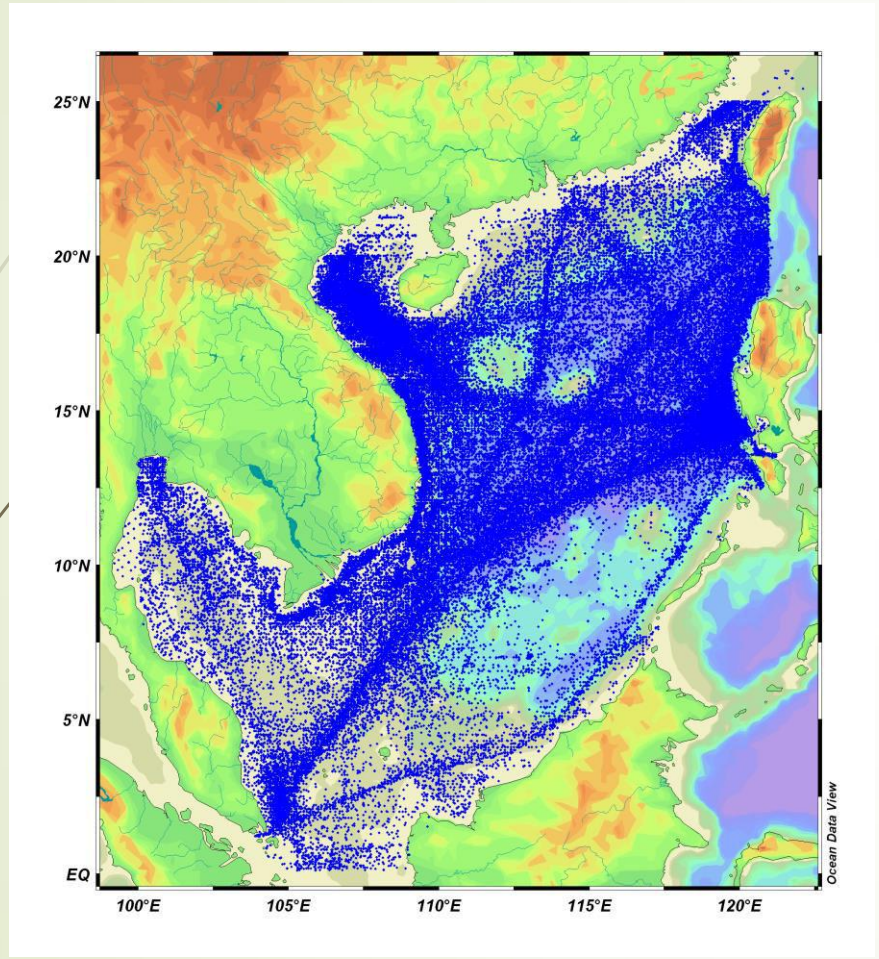
http://www.nesdis.noaa.gov/about_nesdis.html

http://www.ospo.noaa.gov/Products/ocean/ssheight.html

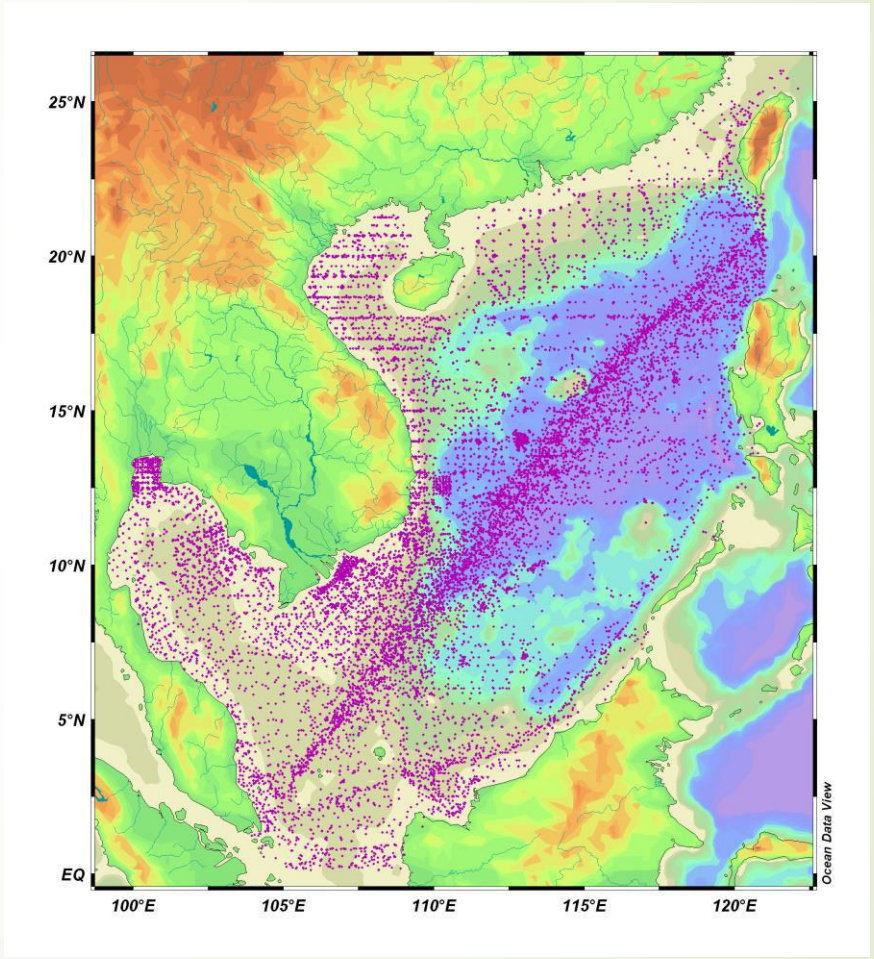
http://www.ncep.noaa.gov/nationalmaps/

http://nomads.ncdc.noaa.gov/data.php

The outlines of Observed Stations



For Seawater Temperature



For Seawater Salinity

SWOT analysis of Oceanographic Database

Policy and Framework

Structure of OD

Human capacity

Policy and framework

	Strengths	**Weaknesses**
Internal Factors	*Government provides Law and Regulation for management of sea and islands*	*Lack of protocol for marine and ocean data management* *Lack of the supports from policy makers and data holders for OD*
	Opportunities	*Threats*
External Factors	*Support for expanding the functions and exchange and cooperation of OD* *Networking*	*Different level of management and uses of other ODs*

Structures of OD

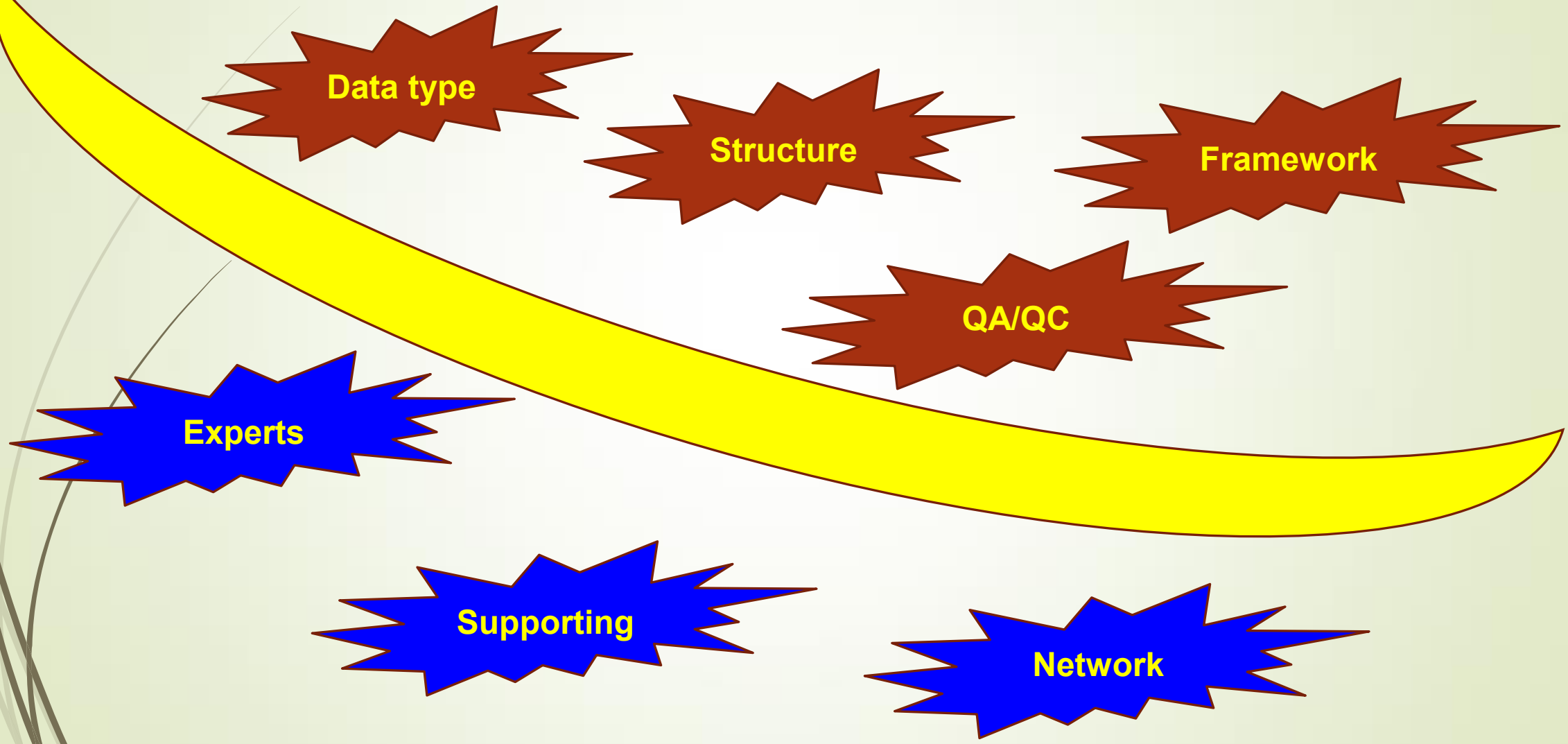
	Strengths	Weaknesses
Internal Factors	*Big-data (in-situ data, remote sensing data, reanalysis)*	*- Complication of database* *- Manage and exchange data* *- Limiting update of OD* *- Several marine/ocean database but lack the framework for data exchanges within/outside Vietnam*
	Opportunities	*Threats*
External Factors	*Several database in international, regional and national levels: helping the structure and managing methods*	*Licenses* *Tools for management, analysis and uses (such as: software)*

Human capacity

	Strengths	**Weaknesses**
Internal Factors	*Many national/institutional data holders.*	*Technical level of data management and data analysis are generally limited*
	Opportunities	*Threats*
External Factors	*Strengthen the exchange of ocean data between countries and international organizations*	*Lack of supporting from national and international for human capacity building on OD*

How we do for exchanging OD

Issues for OD and information exchanges



Needs for information and data exchange

Ocean Data

- Collect data
  - Techniques
  - Observation
- Organize / analysis data
  - Software
  - Simulation data
  - Modelling
  - Database
- Exchange data
  - Framework
  - Policy
  - License

Ocean Library

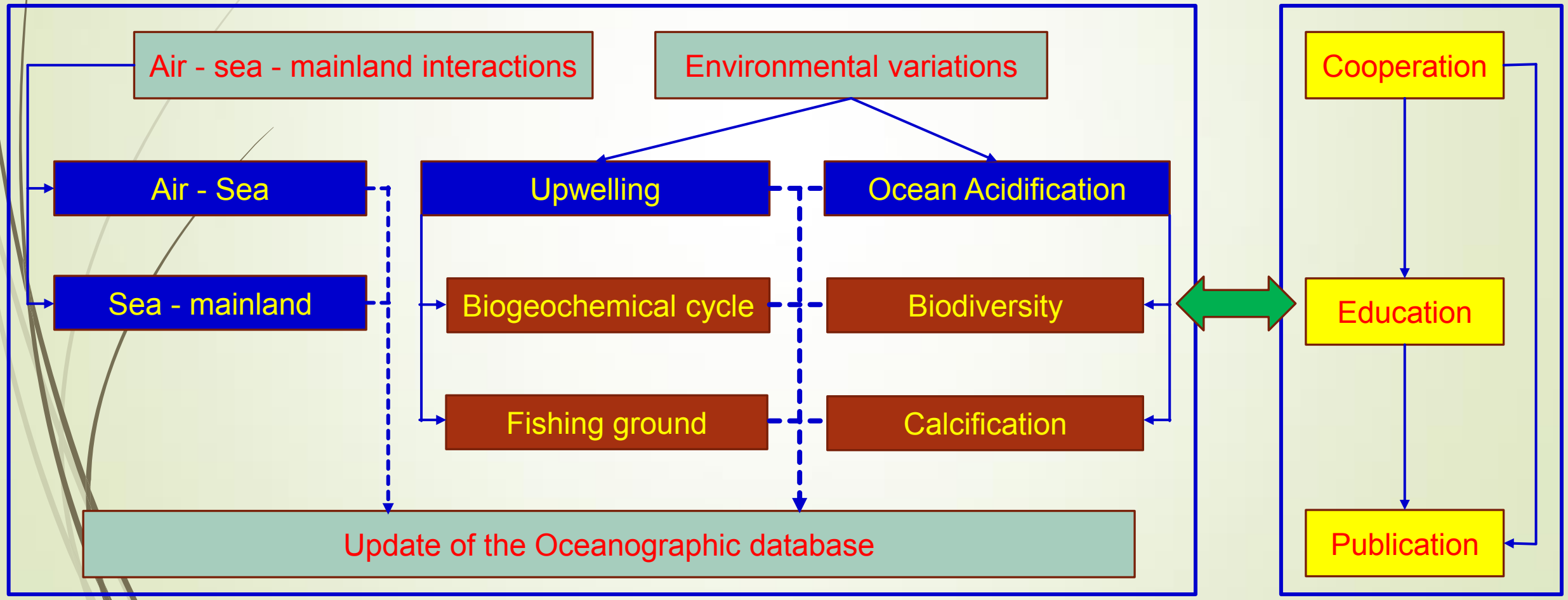
- Collect metadata
  - Self-Publication
  - Others
- Manage data
  - Software
  - Saving store
- Exchange
  - Framework
  - Policy
  - License

Donor

Outlooks

Study on the interactive processes of air - sea - mainland and environmental variations of Bien Dong in the context of climate changes within the framework of IOC/WESTPAC

Time: 2017-2020 ***Funding: Vietnam Government***



Solving WESTPAC and OBIS biodiversity needs through Networking libraries and OceanDocs

- *Question: How can we think in new ways to create new resources?*
- *Goal of project: Contributing/sharing/managing marine biodiversity information of Westpac from research papers published via networking libraries of Westpac*
- *Targets:*
  - *Science vs. Languages*
  - *Scientific database vs. Metadata for communication*
  - *Scientific data exchanges between WESTPAC countries, OBIS and other global databases*

Thank you very much for your attention !!!