A CENTRAL DATABASE SYSTEM *for Marine and Coastal Resources and Environment*

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Phuket Marine Biological Center
Department of Marine and Coastal Resources

GEOSS-AP, OCI

Kyoto, October 2018

Department of Marine and Coastal Resources

- Protect, Conserve and Restore Marine and Coastal resources and Environment.
- Propose, Implement and Enforce Policy plans, Managing strategies as well as Laws.
- Monitor and Research.
- Encourage awareness and participation of the public
- Data centre: Aggregate, Analyse and Disseminate

Static Data
& Base Map

Dynamic Data

-Online Input facility
-Offline Input template

Standardised Data

-Editing tools
-Analysis tools

Analysed Data

-SHP tools

SHP & Attribute

Query

View, Report &
Download

LAN

Cloud

Accessibility

Public

Staffs

Decision makers

Admin

Policy and
Management
Acting

The SYSTEM 2018

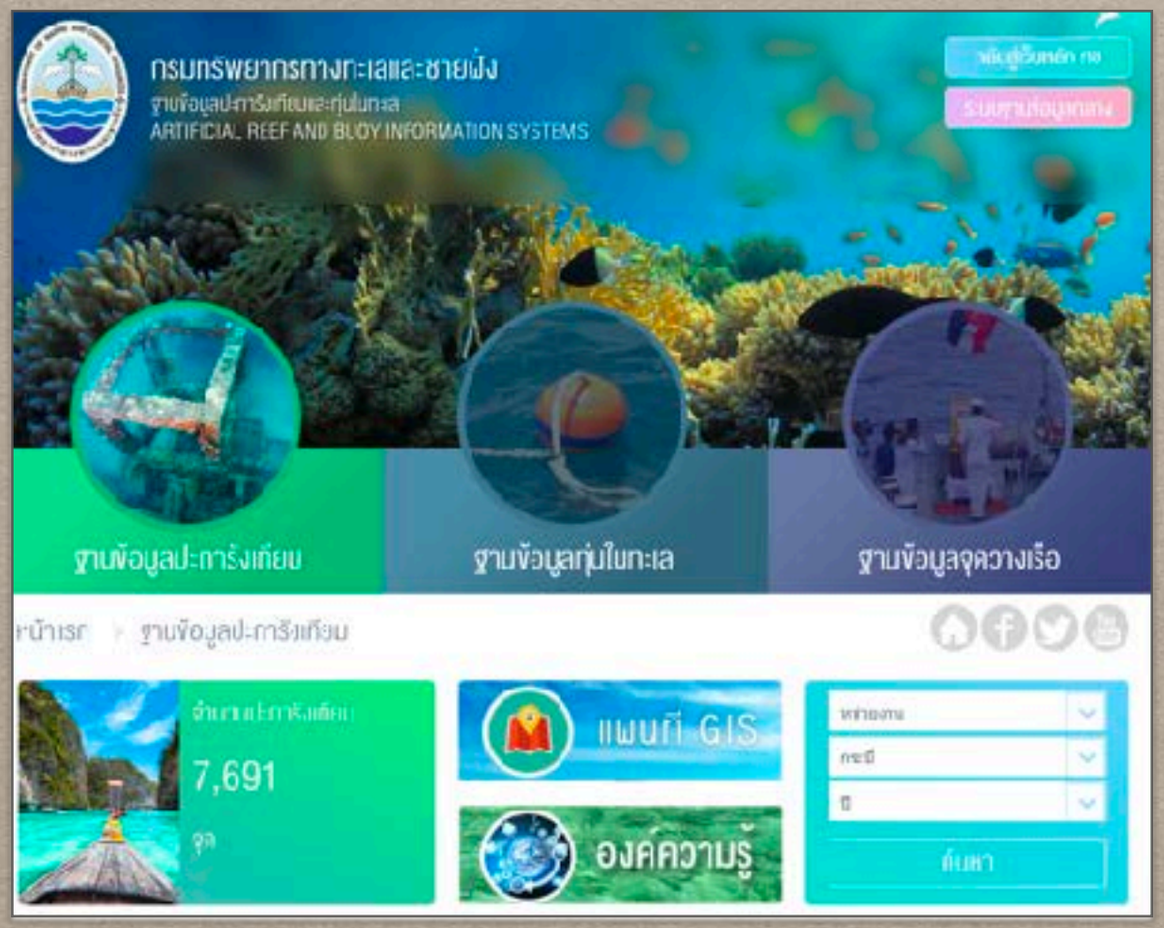
http://marinegiscenter.dmcr.go.th

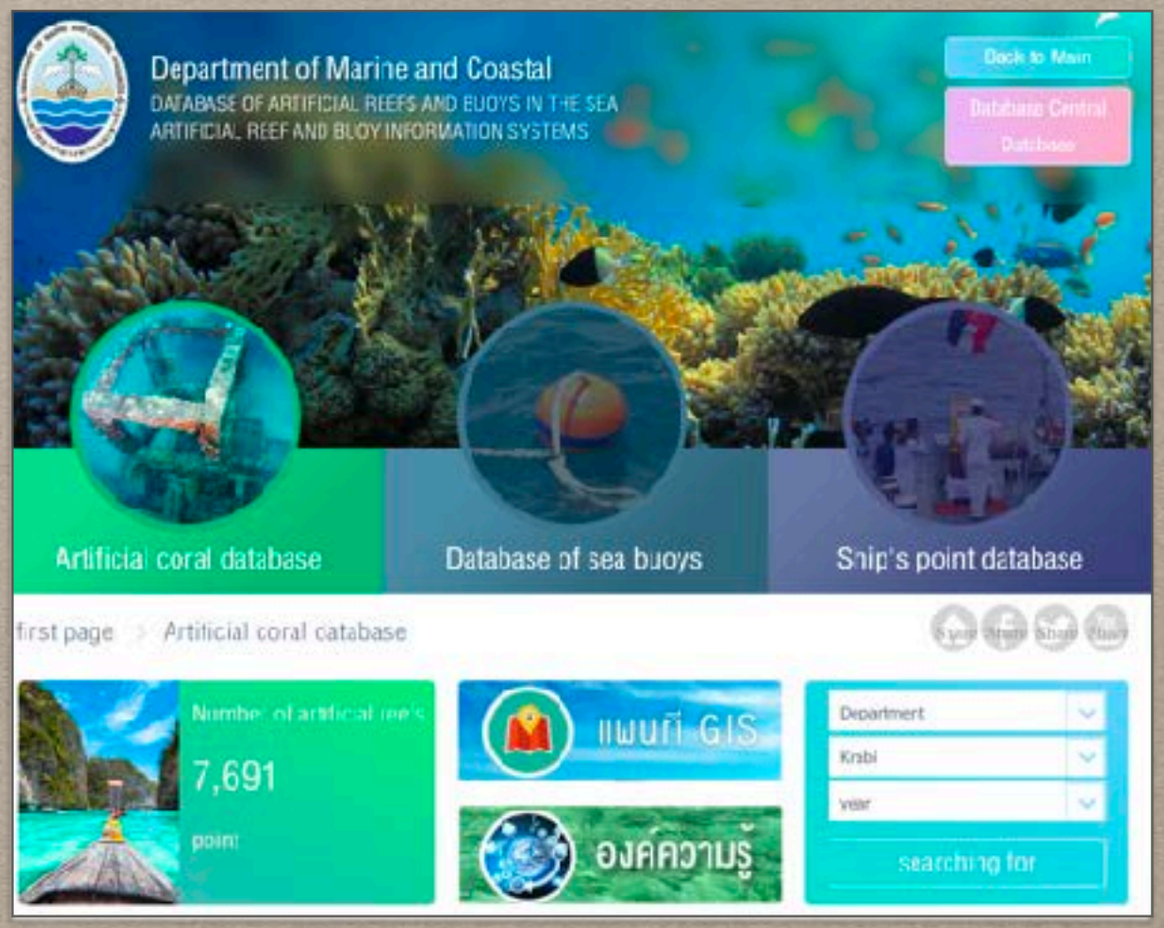
2016

2017

2018

Web Browser translation





1

KM

Knowledge Management

ฐานข้อมูลองค์ความรู้

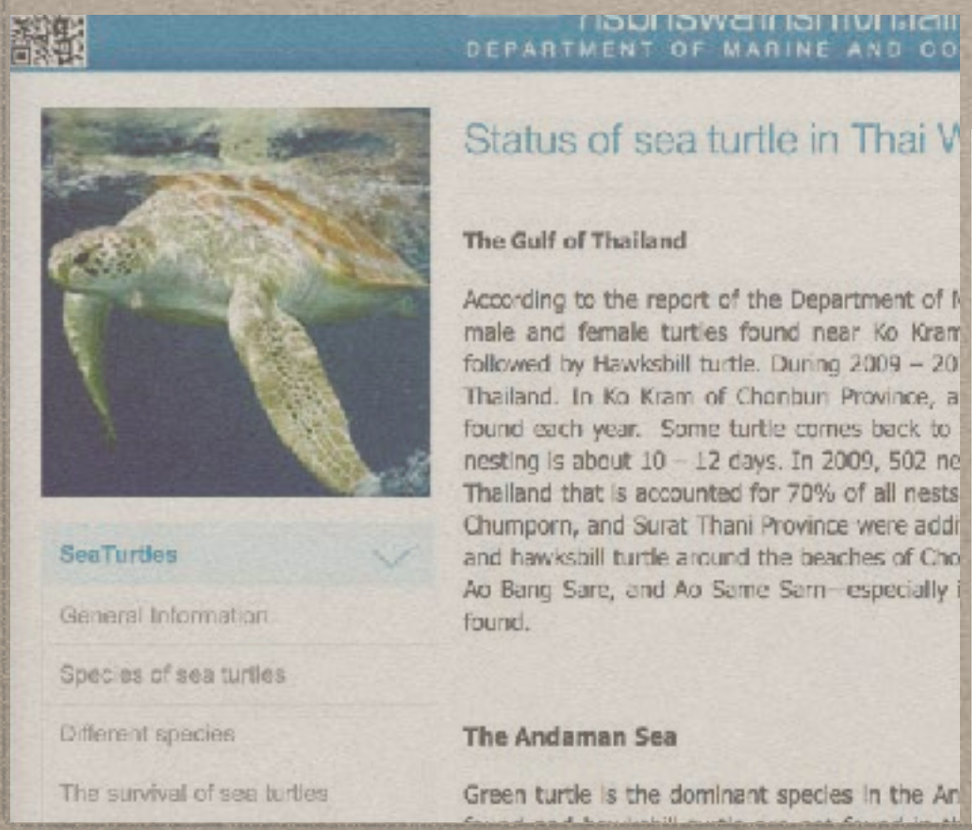
2

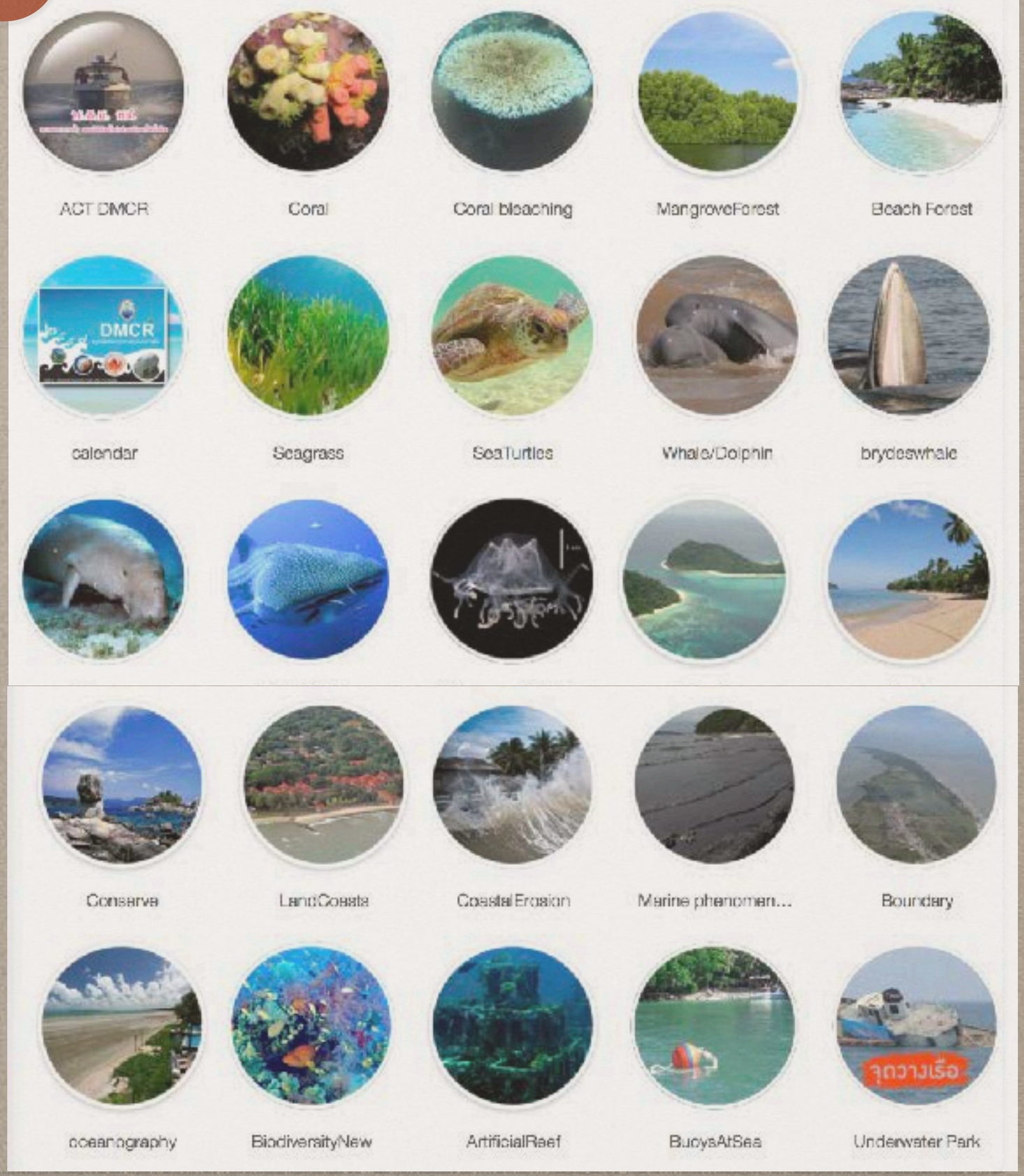
RIS

Research

Information Systems

ฐานข้อมูลงานวิจัย





3

MIS

Management Information Systems

ระบบสารสนเทศการจัดการ

Static Data & Base Map

Dynamic Data

-Online Input facility

-Offline Input template

Standardised Data

-Editing tools

-Analysis tools

Analysed Data

-SHP tools

SHP & Attribute

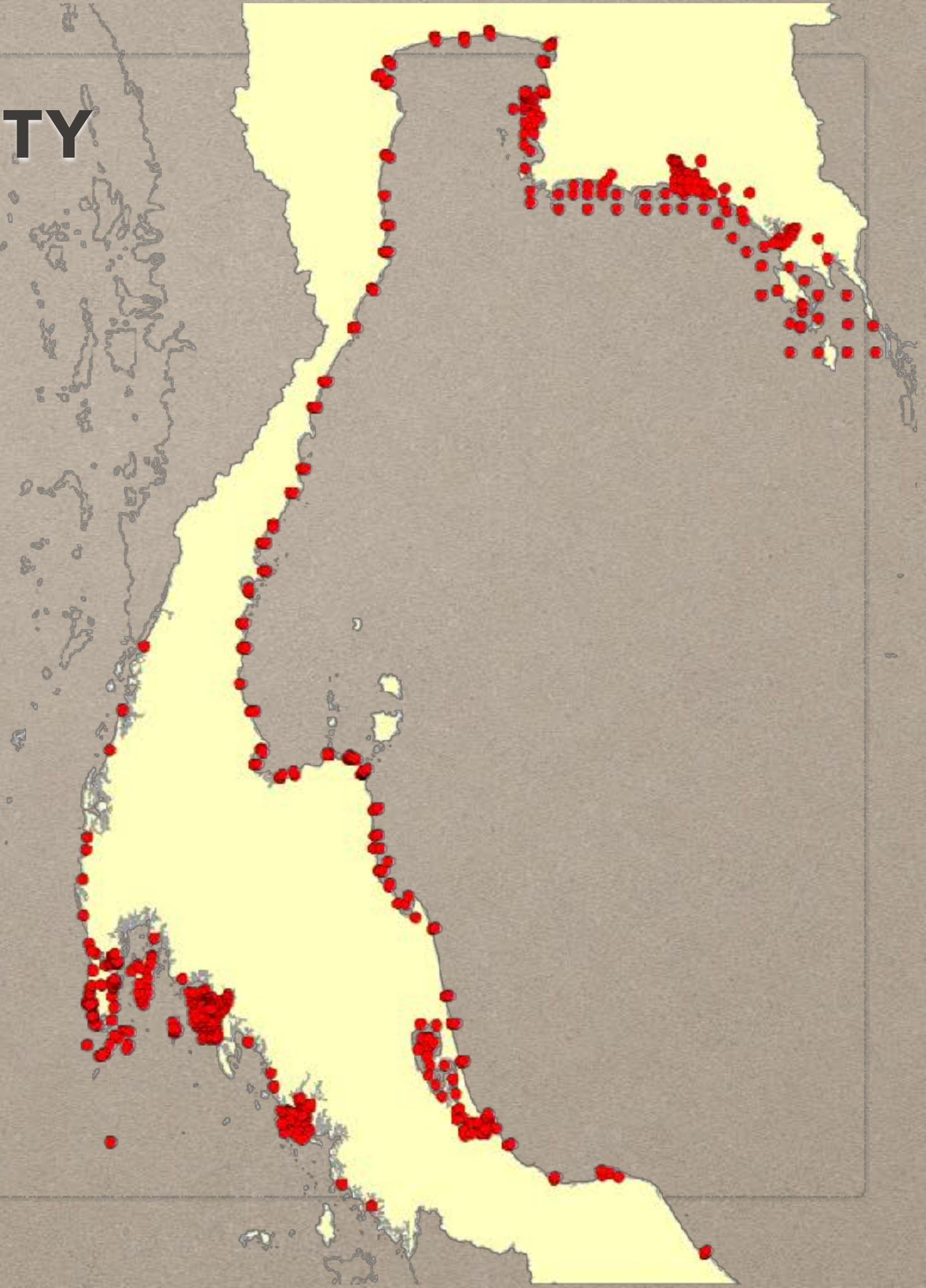
Query

View, Report & Download

Marine Biodiversity	-SP Richness & Diversity
Coral	-%Life cover -SP Richness & Diversity
Seagrass	-%Cover, Biomass -SP Richness & Diversity
Marine Endangered Spec	-Stranded statistic -Richness
Water quality	-MWQ index -WQ parameters
Mangrove	-Density -SP Richness & Diversity
Coastal Erosion	Erosion level
Enforcement report	No. of cases

SEAWATER QUALITY

- 696 Stations (136 permanent stations)
- 2007-present
- Every 2 Months
- 8-parameters SWQI
- Other 6+ parameters



SEAWATER QUALITY

WQ
Excel file

Station
Excel file

Excel import tool

Station Table
StationID
StationName
Office
Province
Amphur
District
Subdistrict
Lat
Lon

1

many

WQ Table
RecordID
StationID
DateTime
DO
TCB
PO4
NO3
Temp
TSS
pH
NH4
NH3
PO4
SC

SOWAY Table
RecordID
StationName
Province
DateTime
Lat
Lon
MWQ_Score
WQ_Status

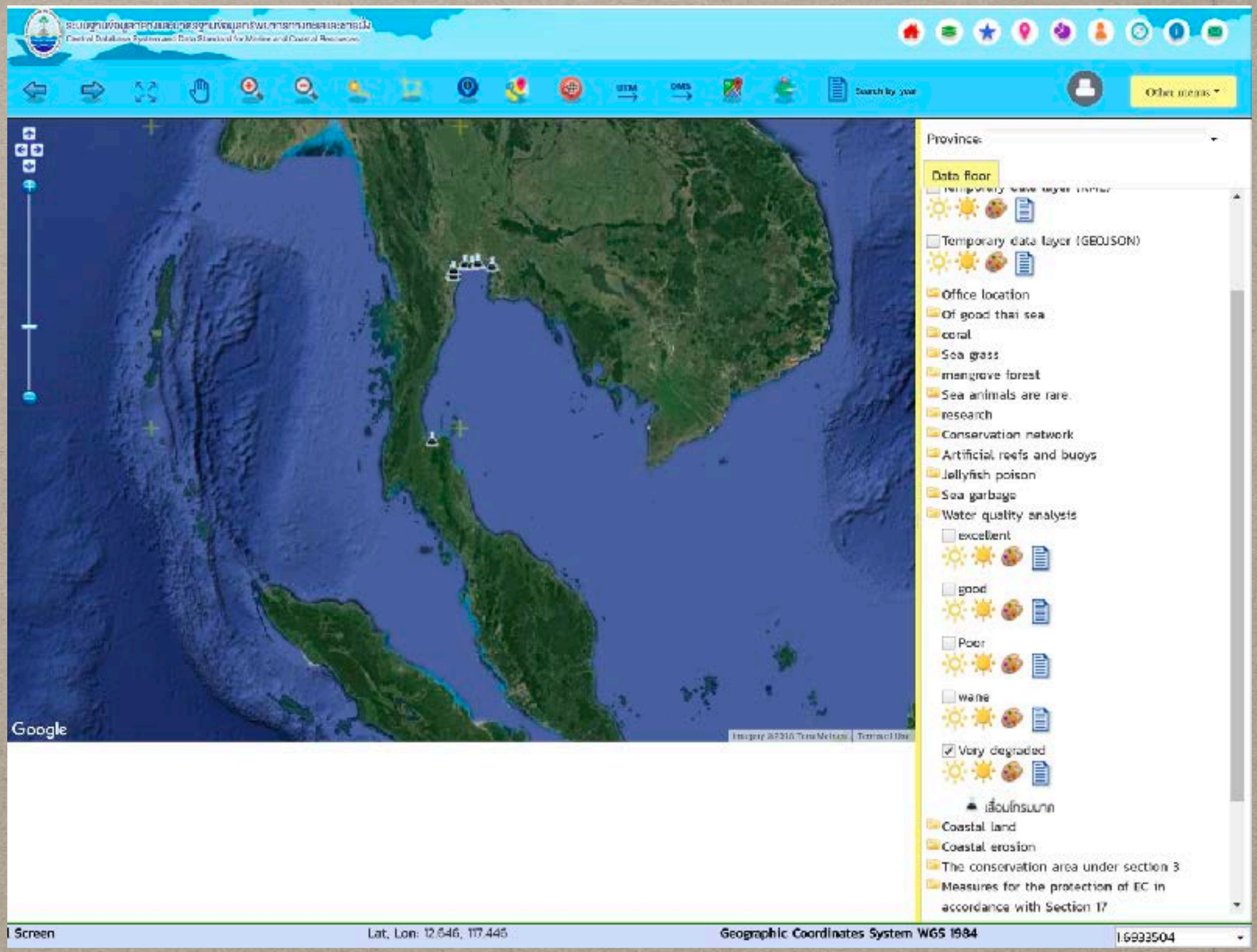
MWQ index

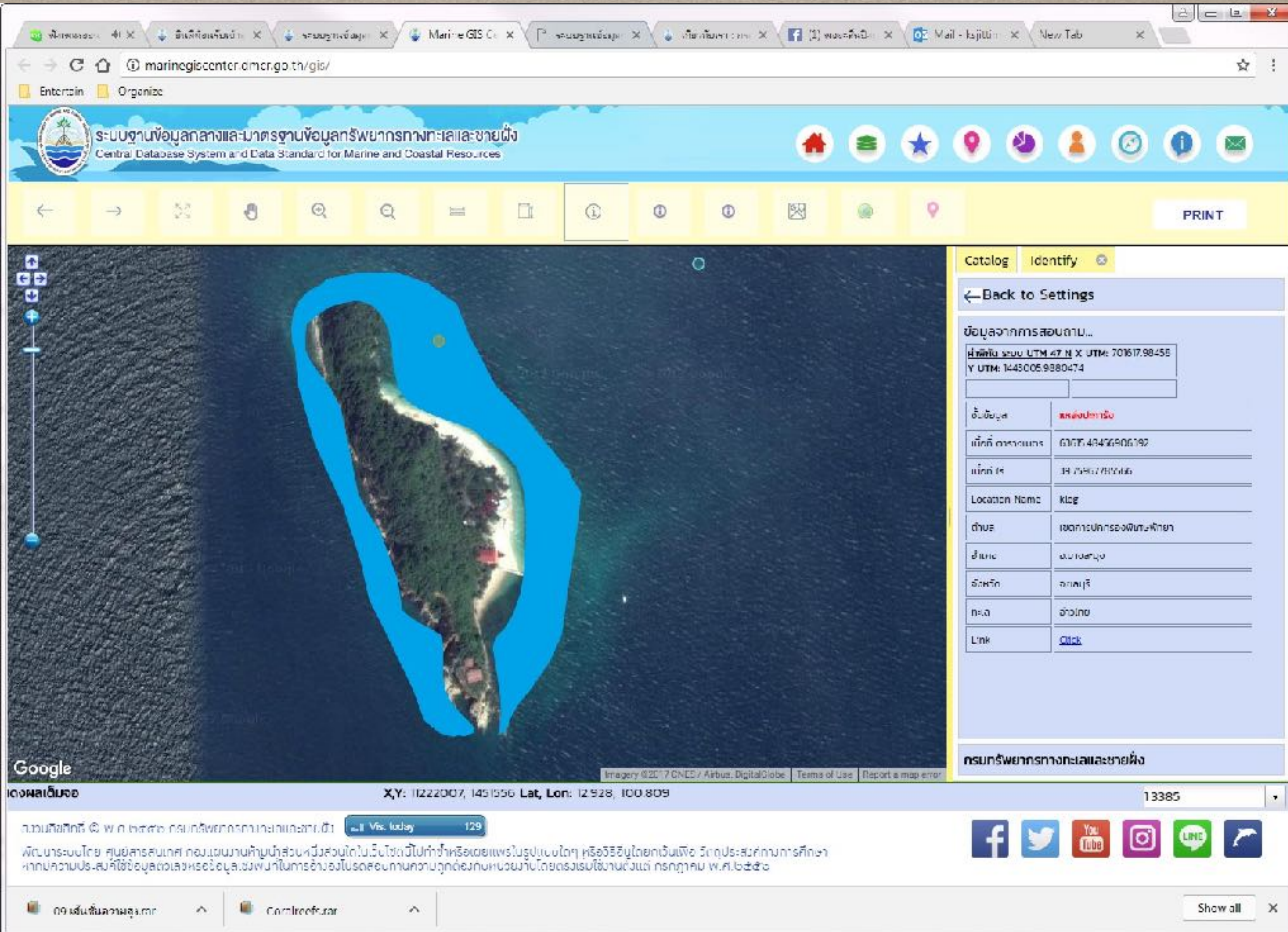
=(1/100)×(DO×0.16+TCB×0.14+PO4×0.12+NO3×0.12+Temp×0.12+TSS×0.11+pH×0.11+NH4×0.11)^2

4

GIS

Geographic
Information Systems
ระบบแผนที่ออนไลน์





marinegiscenter.dmcr.go.th/gis/
ระบบฐานข้อมูลกลางและมาตรฐานข้อมูลทรัพยากรทางทะเลและชายฝั่ง
Central Database System and Data Standard for Marine and Coastal Resources
PRINT
Catalog
Identify
Back to Settings
Google
Location Name
Link
Click
กรมทรัพยากรทางทะเลและชายฝั่ง
Show all

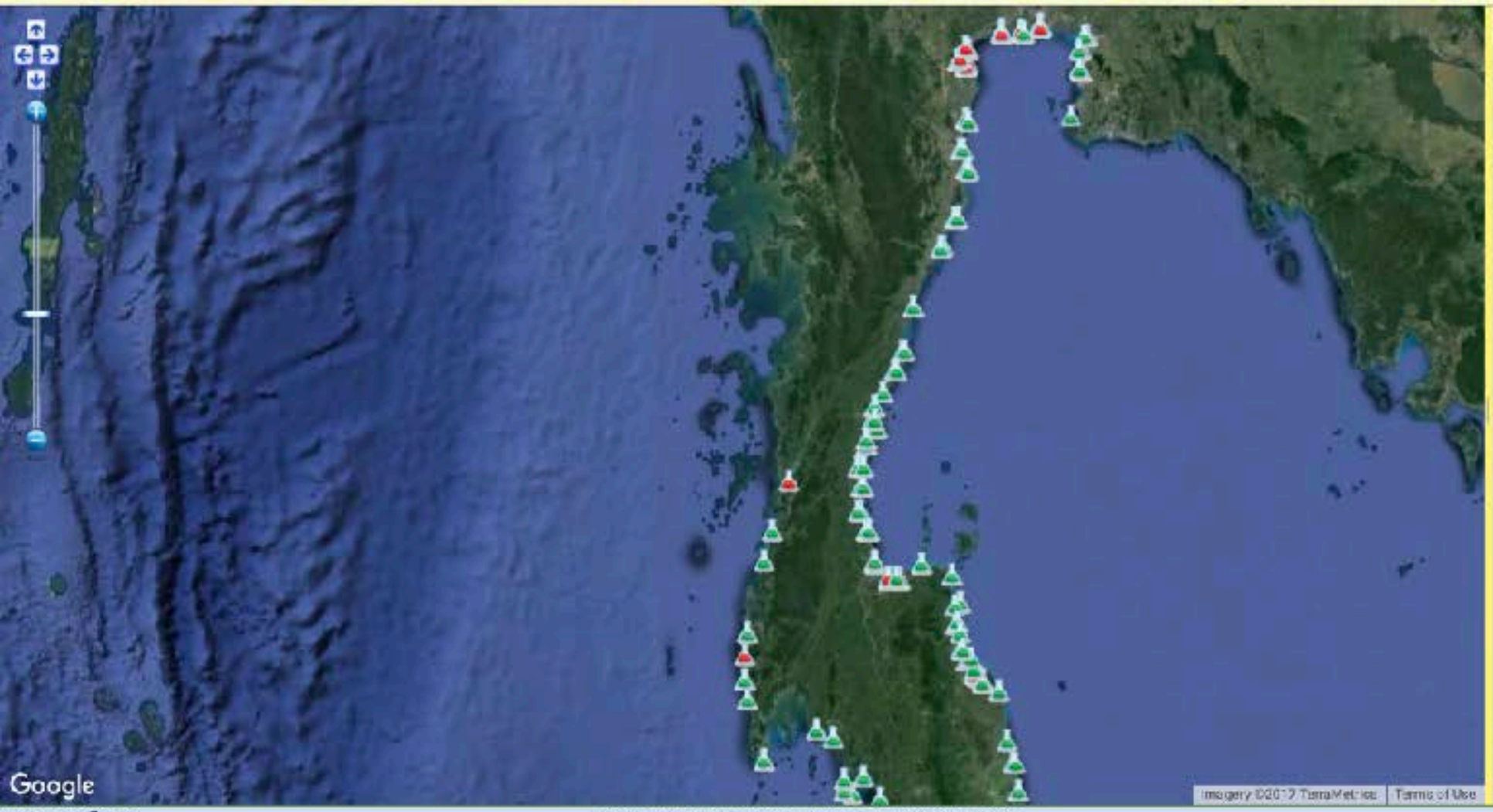
marinegiscenter.dmcr.go.th

หน้าหลัก : กรมทรัพยากรทาง... | ระบบฐานข้อมูลกลางและมาต... | General Information » ... | ระบบฐานข้อมูลกลางและมา... | Marine GIS Center 2017 | Marine GIS Center | DMCR | GISTDA | Forecast Results

ระบบฐานข้อมูลกลางและมาตรฐานข้อมูลทรัพยากรทางทะเลและชายฝั่ง

Central Database System and Data Standard for Marine and Coastal Resources

PRINT



Catalog

- สัตว์ทะเลหายาก
- งานวิจัย
- เครือข่ายอนุรักษ์
- ปะการังเทียมและหุ่น
- แนวกะพรุนพิษ
- การวิเคราะห์คุณภาพน้ำ
  - ☑ ดีมาก
  - ดีมาก
  - ☐ ดี
  - ☐ พอใช้
  - ☑ เสื่อมโทรม
  - เสื่อมโทรม
  - ☑ เสื่อมโทรมมาก
  - เสื่อมโทรมมาก
- ที่ดินชายฝั่งทะเล
- การกัดเซาะชายฝั่ง
- เขตอนุรักษ์
- ข้อมูลพื้นฐานทางทะเลและชายฝั่ง

แสดงผลเต็มจอ

X,Y: 11588443, 1108715 Lat, Lon: 9.910, 104.101

13466743

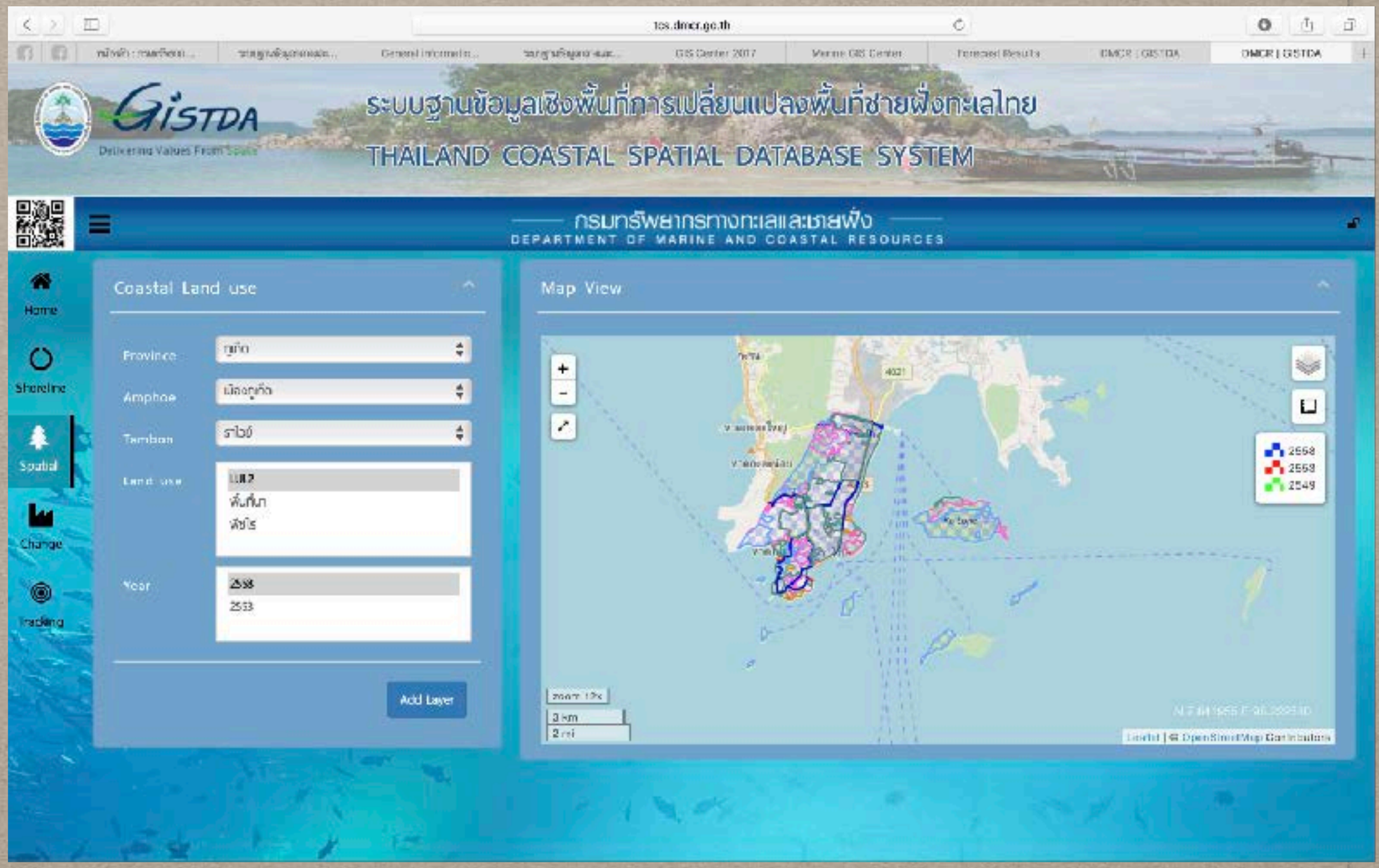
Est. Pages 2 433 776

5

TCS

Thailand Coastal Spatial Database System

ฐานข้อมูลการเปลี่ยนแปลงชายฝั่งทะเลไทย



tcs.dmcr.go.th

DMCR | GISTDA

GISTDA
Delivering Values From Space

ระบบฐานข้อมูลเชิงพื้นที่การเปลี่ยนแปลงพื้นที่ชายฝั่งทะเลไทย

THAILAND COASTAL SPATIAL DATABASE SYSTEM

กรมทรัพยากรทางทะเลและชายฝั่ง
DEPARTMENT OF MARINE AND COASTAL RESOURCES

Home
Shoreline
Spatial
Change
Tracking

Shoreline

Province: กรุงเทพมหานคร
Amphoe: Amphoe
Tambon: Tambon
Year: 2558, 2557, 2556, 2554

Add Layer

Shoreline : Map View

tcs.dmcr.go.th

DMCR | GISTDA

GISTDA
Delivering Values From Space

ระบบฐานข้อมูลเชิงพื้นที่การเปลี่ยนแปลงพื้นที่ชายฝั่งทะเลไทย

THAILAND COASTAL SPATIAL DATABASE SYSTEM

กรมทรัพยากรทางทะเลและชายฝั่ง
DEPARTMENT OF MARINE AND COASTAL RESOURCES

Home
Shoreline
Spatial
Change
Tracking

Erosion/Accretion

Parameters

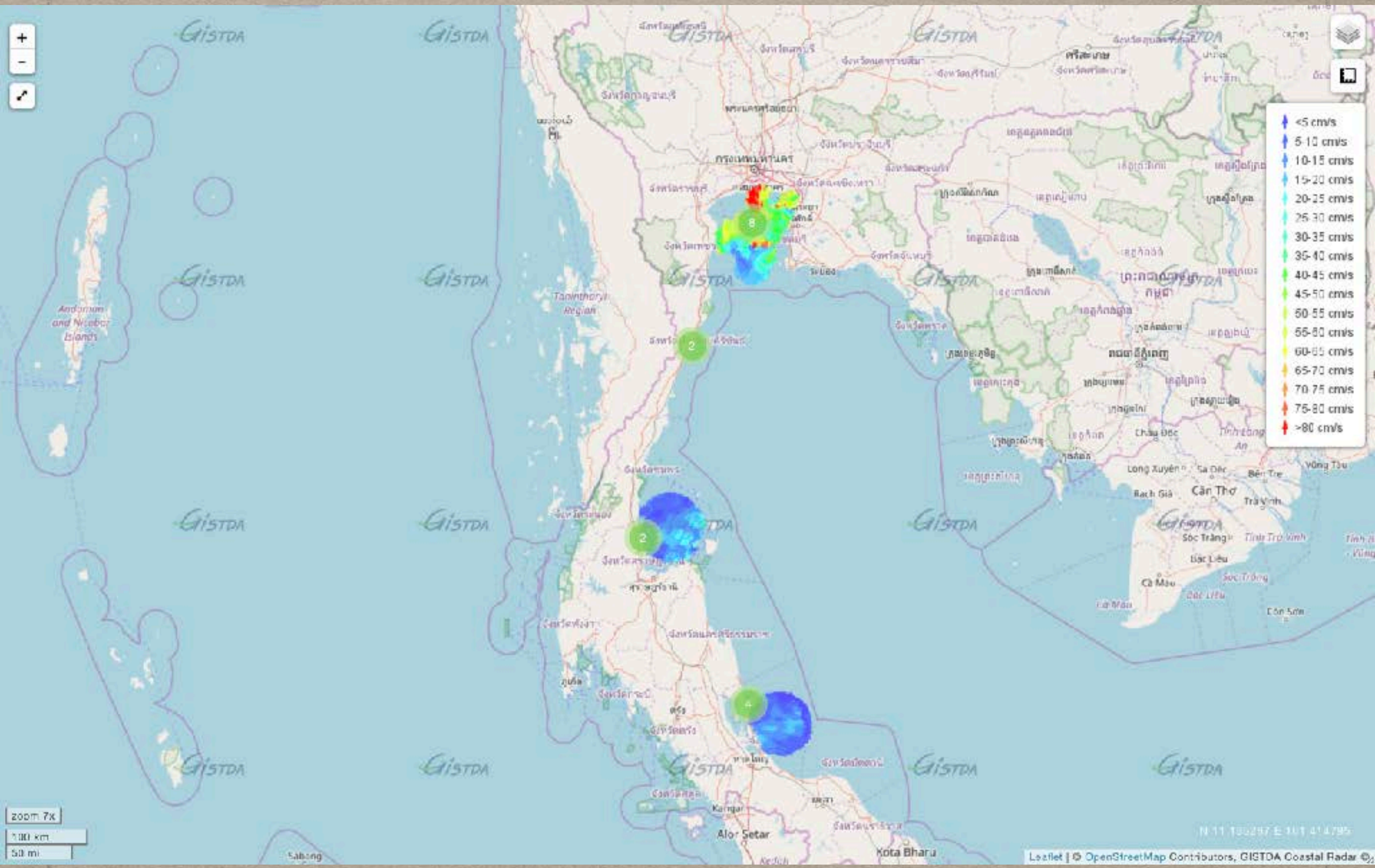
Year A: 2548
Year B: 2558
Province: จังหวัด
Amphoe: Amphoe
Tambon: Tambon

Layer Process

Analysis Area: ON
Erosion: ON
Accretion: ON
Shoreline: OFF

Coastal Change : Map View

High Frequency Radar coverage



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DMCR | GISTDA

GISTDA
Delivering Values From Space

ระบบฐานข้อมูลเชิงพื้นที่การเปลี่ยนแปลงพื้นที่ชายฝั่งทะเลไทย

THAILAND COASTAL SPATIAL DATABASE SYSTEM

กรมทรัพยากรทางทะเลและชายฝั่ง
DEPARTMENT OF MARINE AND COASTAL RESOURCES

Home

Shoreline

Spatia

Change

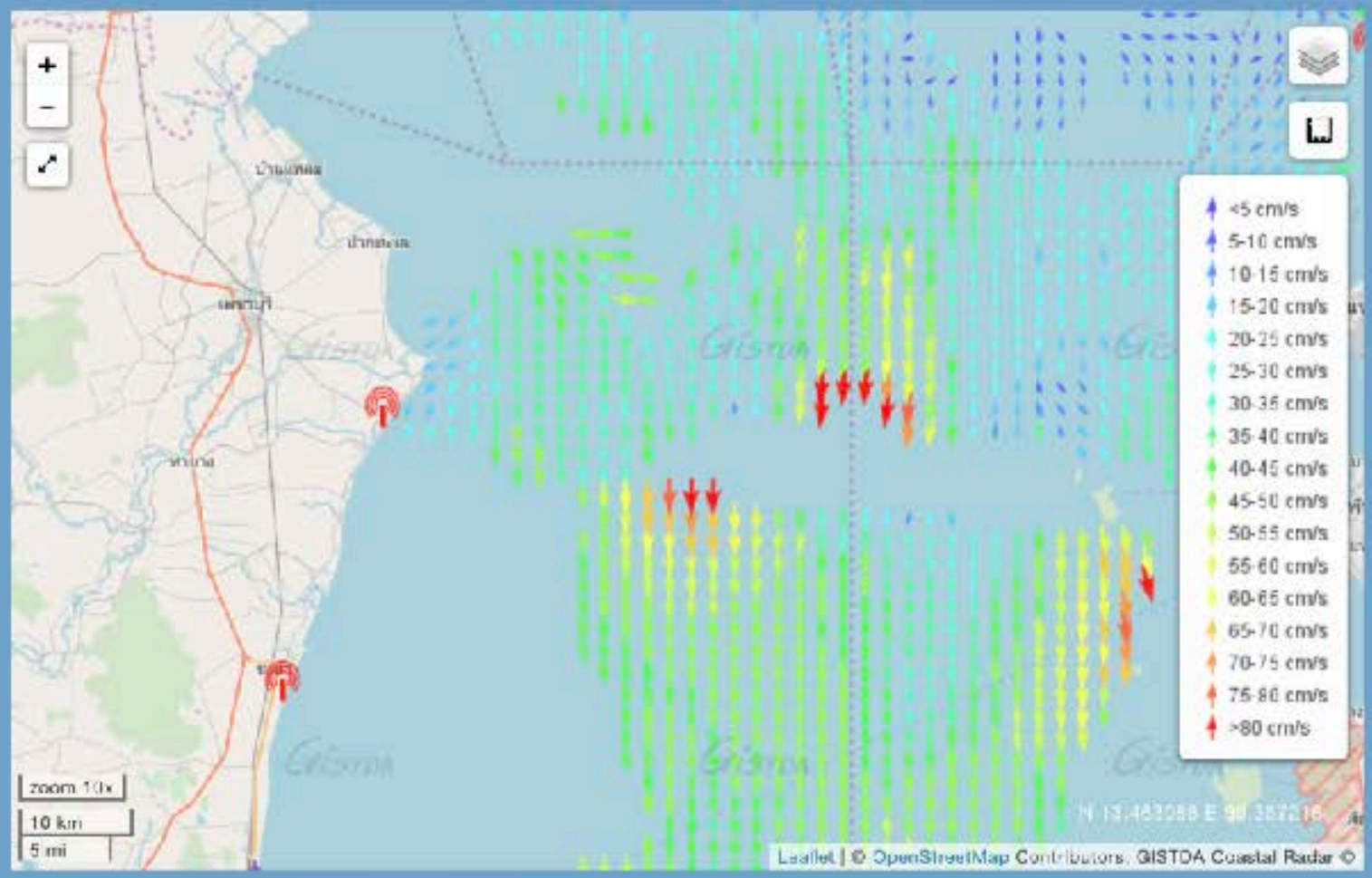
Tracking

Coastal Radar

Layer Process

Upper Gulf Current	ON
Middle Gulf Current	OFF
Lower Gulf Current	OFF

Sea Surface Current : Map View



กรมทรัพยากรทางทะเลและชายฝั่ง
DEPARTMENT OF MARINE AND COASTAL RESOURCES

Home
Shoreline
Spatial
Change
Tracking

Tracking

Parameter

LAT	13.296084
LON	100.519409
Start Date	2017-09-17
Start Time (UTC)	00:00
End Date	2017-09-18
End Time(UTC)	00:00

RUN

Coastal Radar

Upper Gulf Current ON

Drift-Object Tracking System on the Sea Surface : Map View

End
Node ID 114
Date/Time 2017-09-17 17:00:00+07:00
LatLng 13.0631910468,100.5470799637

Start
Node ID 0
Date/Time 2017-09-17 07:00:00+07:00
LatLng 13.296084,100.519409

<5 cm/s
5-10 cm/s
10-15 cm/s
15-20 cm/s
20-25 cm/s
25-30 cm/s
30-35 cm/s
35-40 cm/s
40-45 cm/s
45-50 cm/s
50-55 cm/s
55-60 cm/s
60-65 cm/s
65-70 cm/s
70-75 cm/s
75-80 cm/s
>80 cm/s

zoom 13
1 km
1 mi

Leaflet | © OpenStreetMap Contributors, GISTDA Coastal Radar ©

OFS

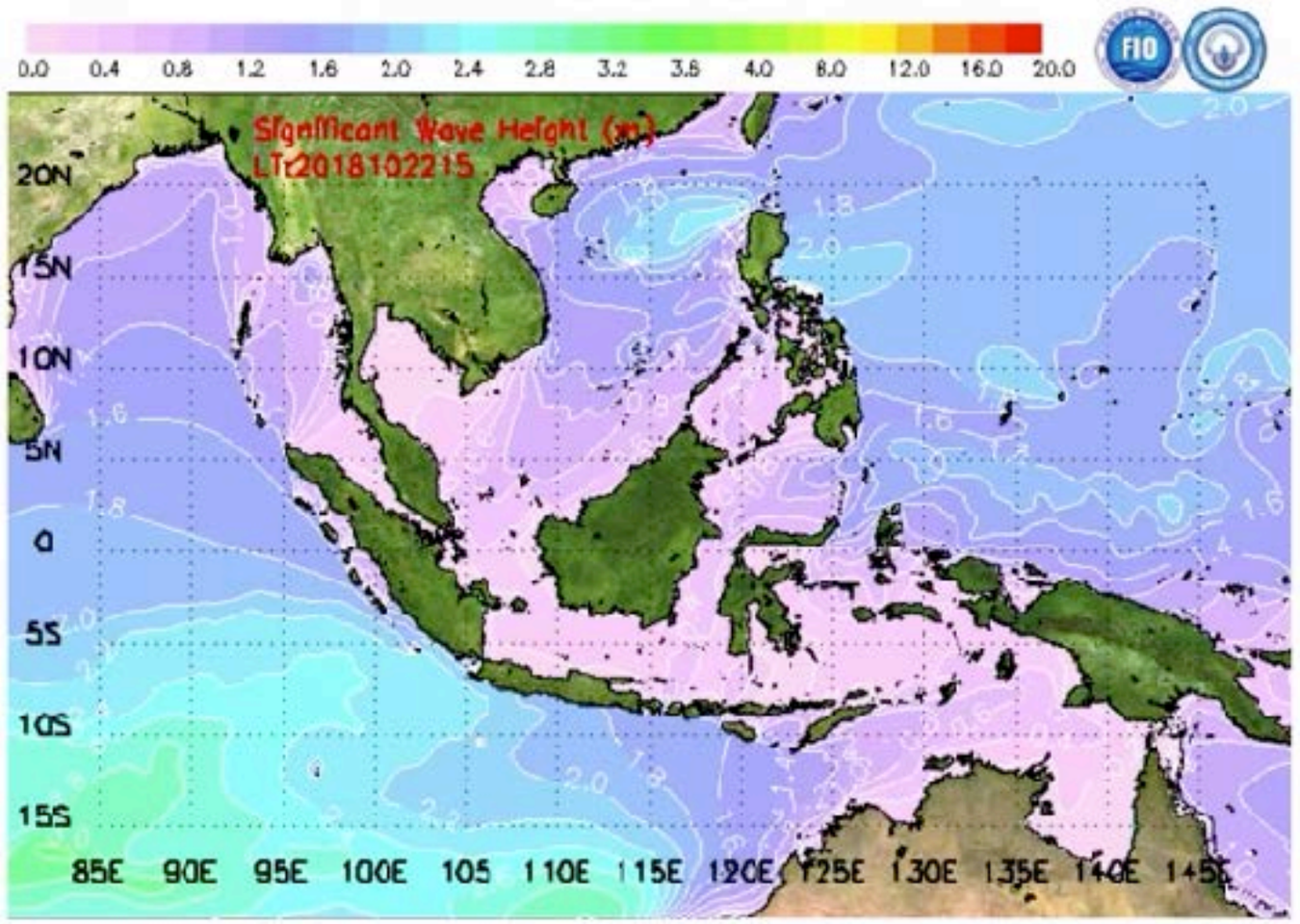
Ocean Forecasting System
ระบบพยากรณ์
ด้านสมุทรศาสตร์

Ocean Forecasting System for the Kingdom of Thailand
(OFS V1.0)

>> Home >> Contact

- >> Forecast Results
  - >> Detailed Results
- >> Background
- >> Research Team
- >> Numerical Model
- >> Model Validation
- >> Publication
- >> Archives

Forecast Results



Parameter
Wave Hight

Time (Local)
2018102215

Depth
0 m

Time step
|<< < > >>|

Animation
START LOOP STOP
FASTER SLOWER

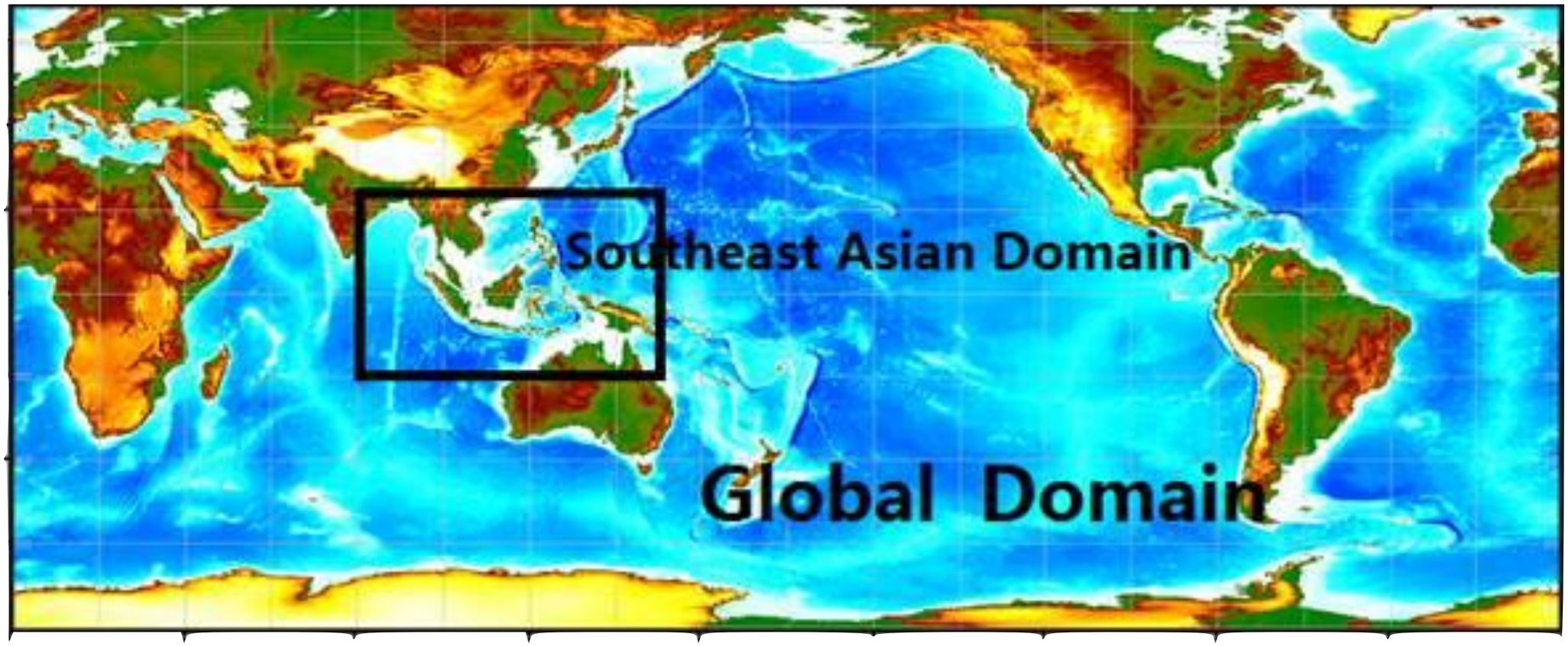
Lon Lat PROFILE Lon1 Lat1 Lon2 Lat2 SECTION

DOUBLE CLICK on the map to show the current profile. Or **INPUT** the coordinate and **CLICK** the button.

国家海洋局第一海洋研究所
THE FIRST INSTITUTE OF OCEANOGRAPHY,SOA

PHUKET MARINE BIOLOGICAL CENTER

OFS Thailand



	Global model	Southeast Asian water
Domain	0° E~360° E, 78° S~65° N	80° E~150° E, 20° S~25° N
Resolution	(1/2)° × (1/2)° ~55Km	(1/6)° × (1/6)° ~20Km
Grids	Horizon:721 × 287 Vertical 21 layer	Horizon:421× 271 Vertical 51 layer
Results	2008 Apr.~ present	2014 Jan.~ present

OFS Thailand flow-chart

Weather model

Wind → Wave model (Forcing)

Result

wind + Temperature dissipation

Wave (Bv)

Result

In Situ data
- NDBC
- NCEP
- NOS

PMBC's system

forcing

forcing

3 days Ocean Forecasting in the Southeast Asian Seas

Data assimilation

SST

Wind

Sea level

results

Wave height

Current and Temperature

Wind

Sea level

Visualization

Storage

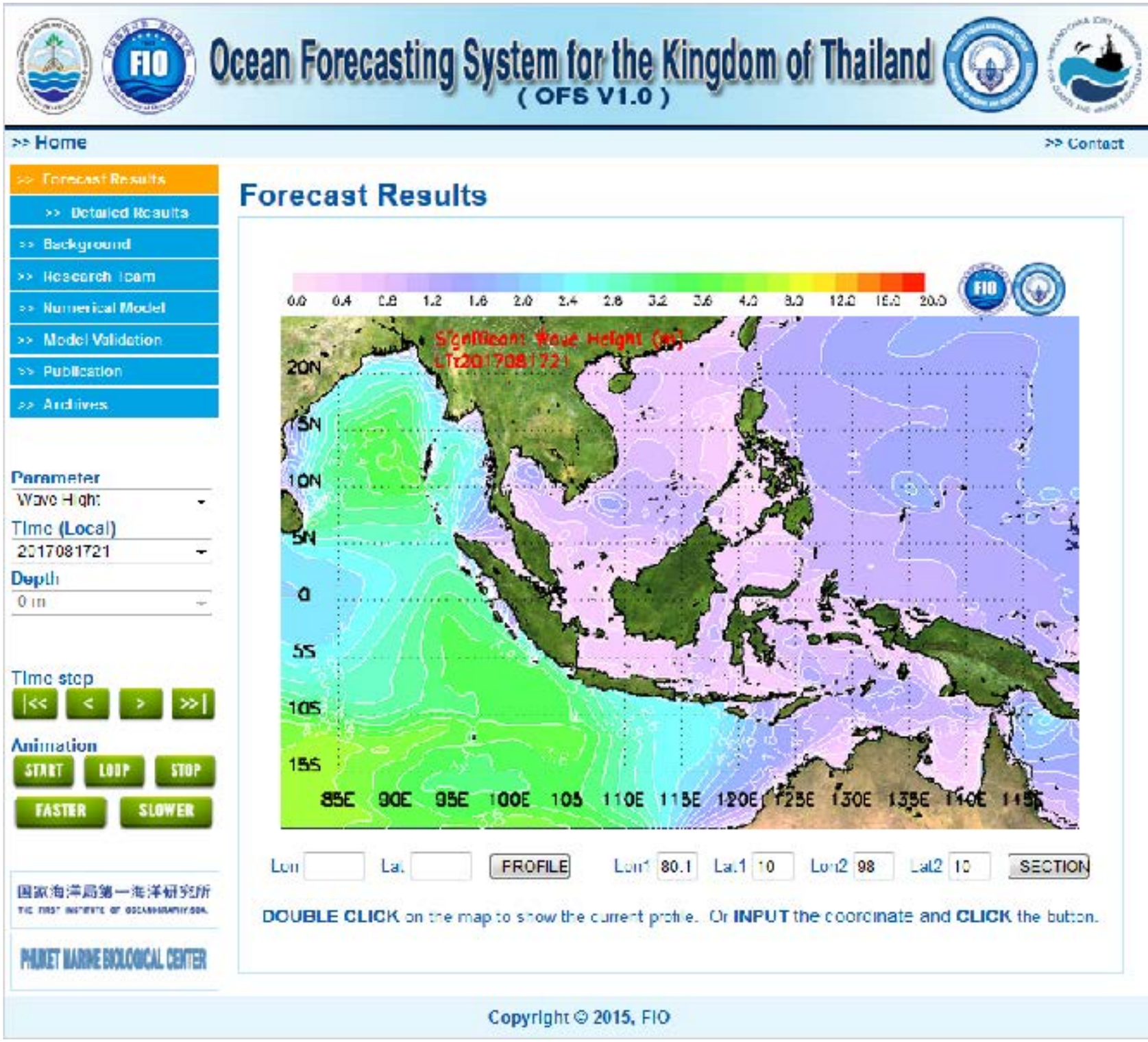
Validation

PMBC-server

http://ofs.dmcr.go.th/thailand/

OFS usage

1. Go to http://ofs.dmcr.go.th/thailand/ At Forecast Result choose parameter **Wave Height, Temperature and Current, Sea level, or Wind**
2. At **Time (Local)** choosing time to show results in 3 days forward, 3 hours interval. The results could be showed in animated by press green buttons.
3. At **Depth** could be showed only parameter **Temperature and Current**



OFS usage

4.**Detailed Results**

could be zoom in and zoom out graphic

Ocean Forecasting System for the Kingdom of Thailand
(OFS V1.0)

>> Home >> Contact

- >> Forecast Results
- >> Detailed Results
- >> Background
- >> Research Team
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- >> Publication
- >> Archives

Forecast Results

Parameter: Wave Height
Time (Local): 2017081721
Depth: 0 m

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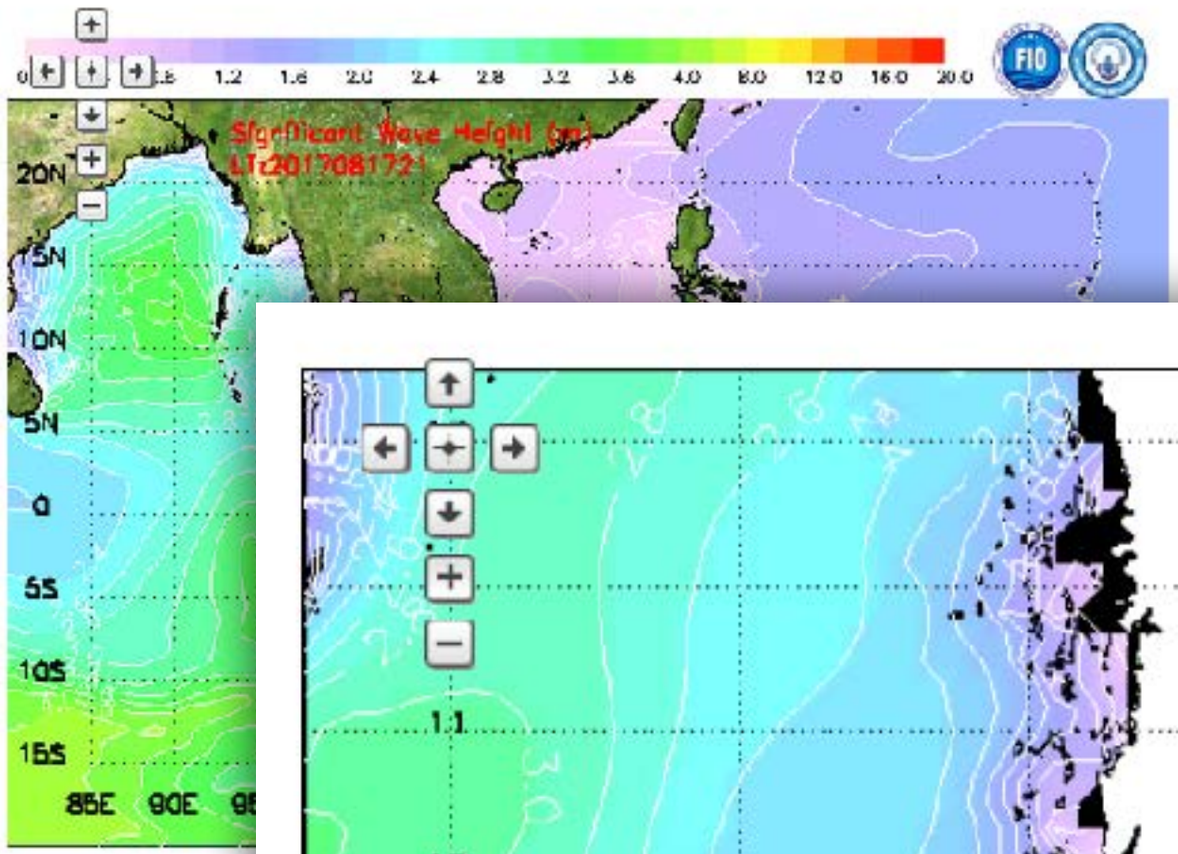
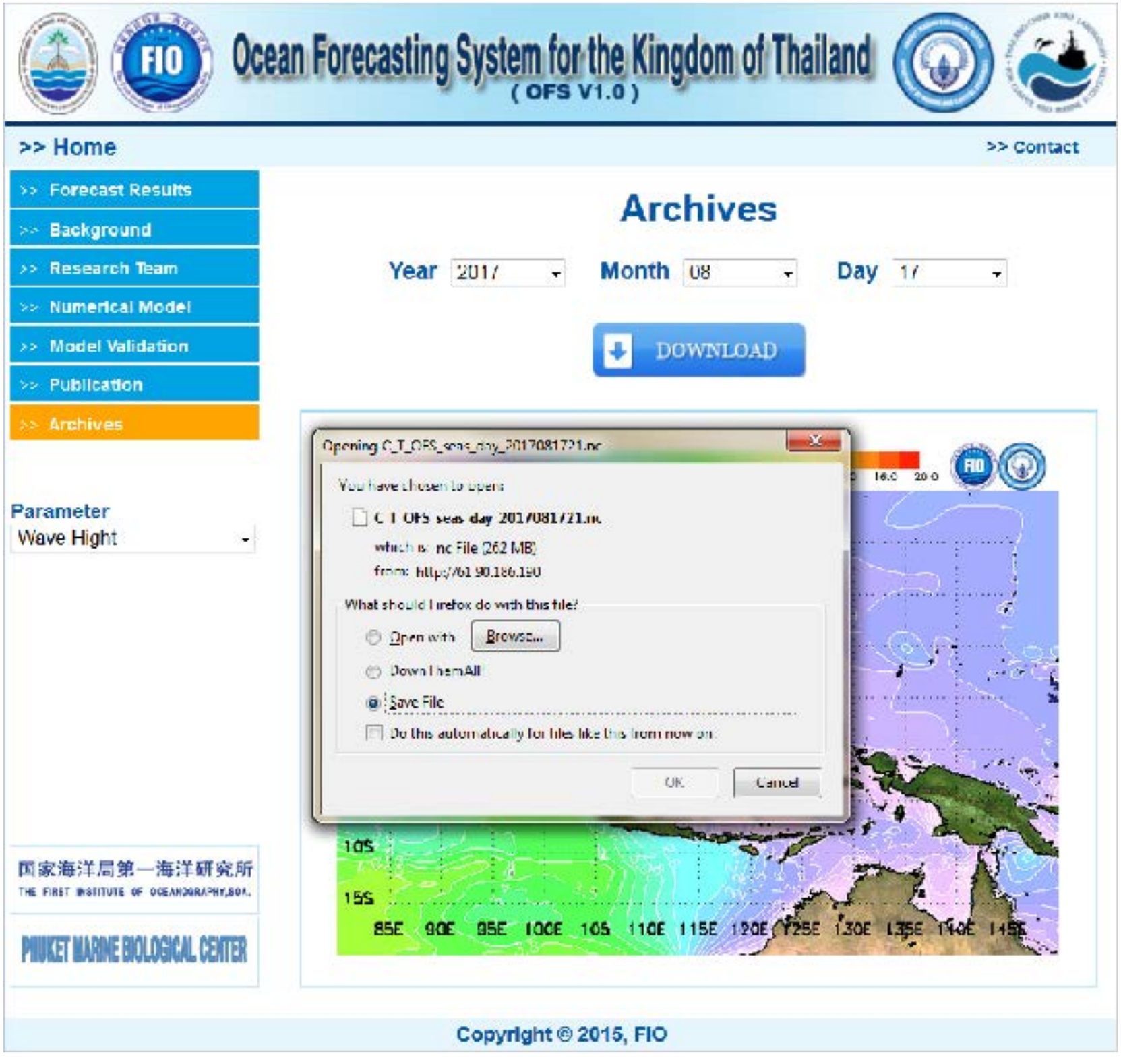


OFS usage

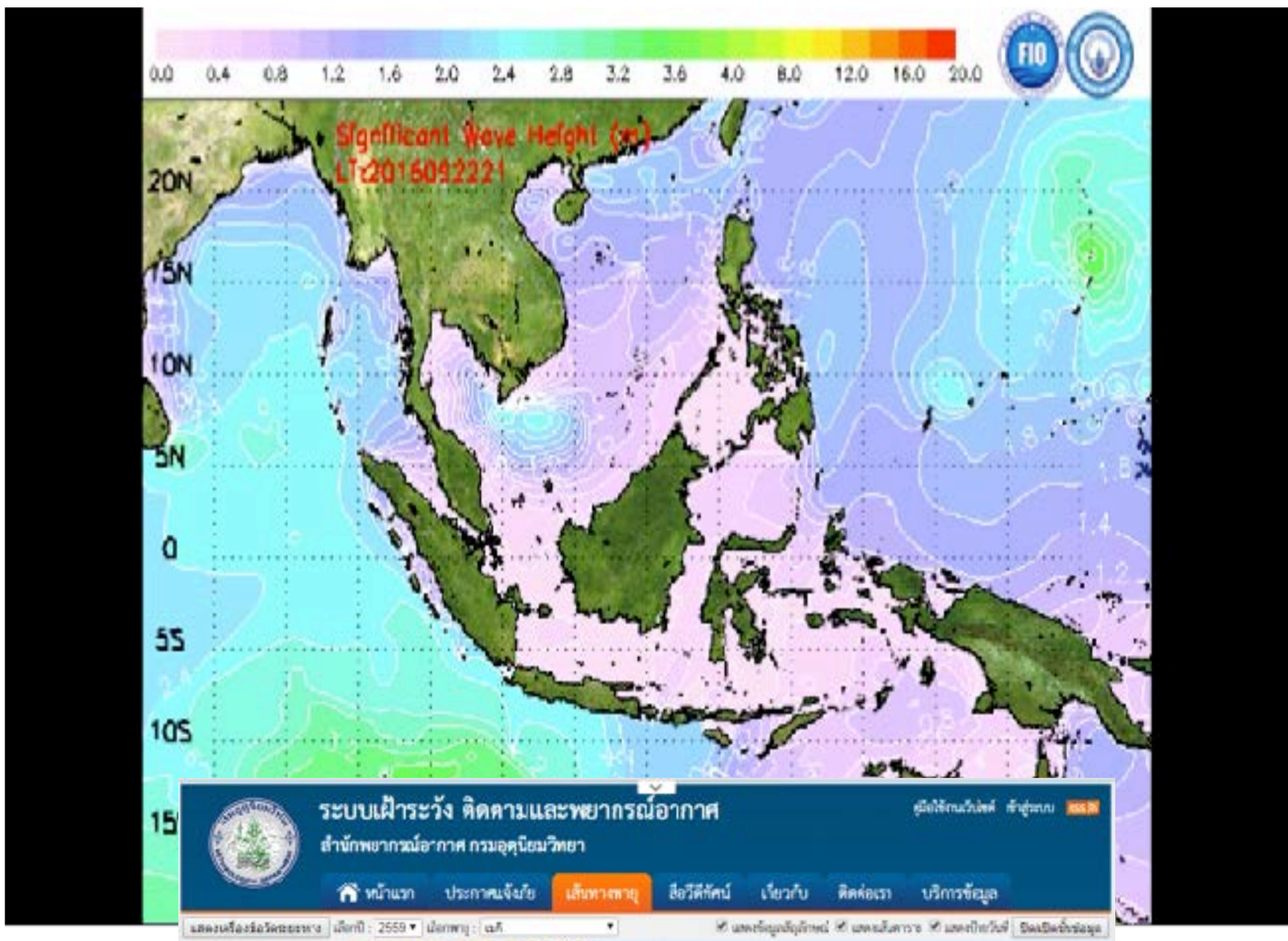
5. **Archives** will be stored all parameters daily in kind of netCDF file. The daily data has been kept by time step since 9PM to next day 9PM.

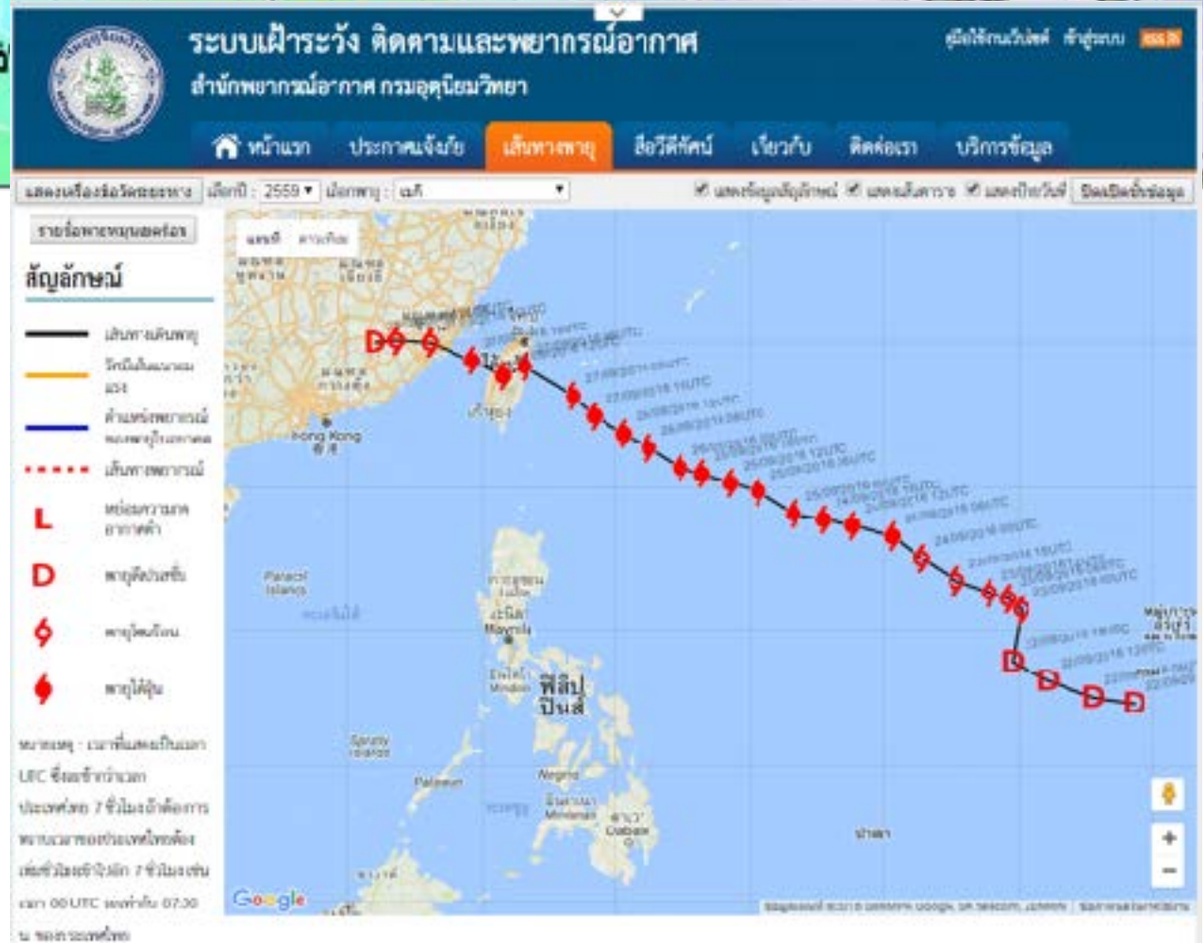


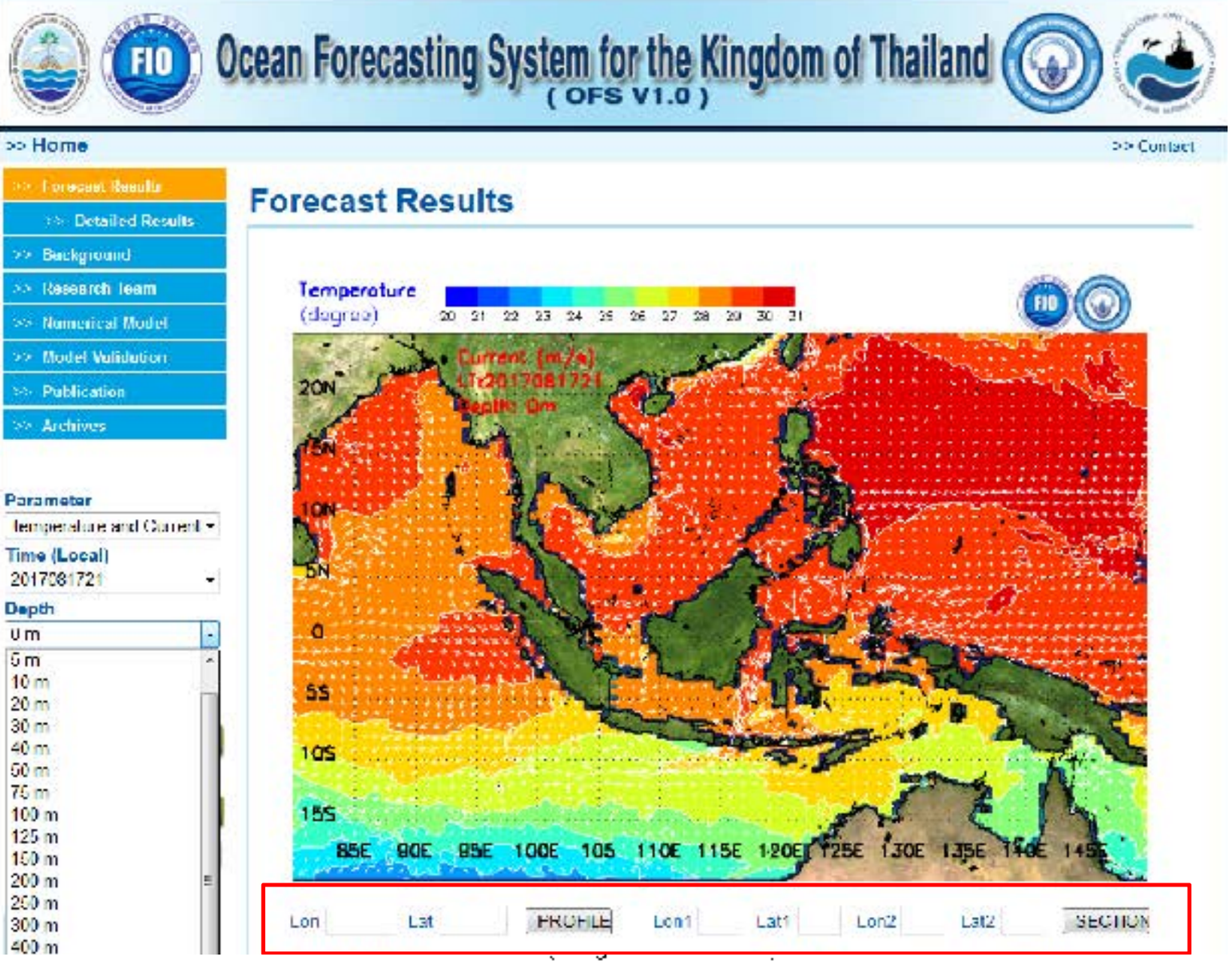
Significant Wave Height

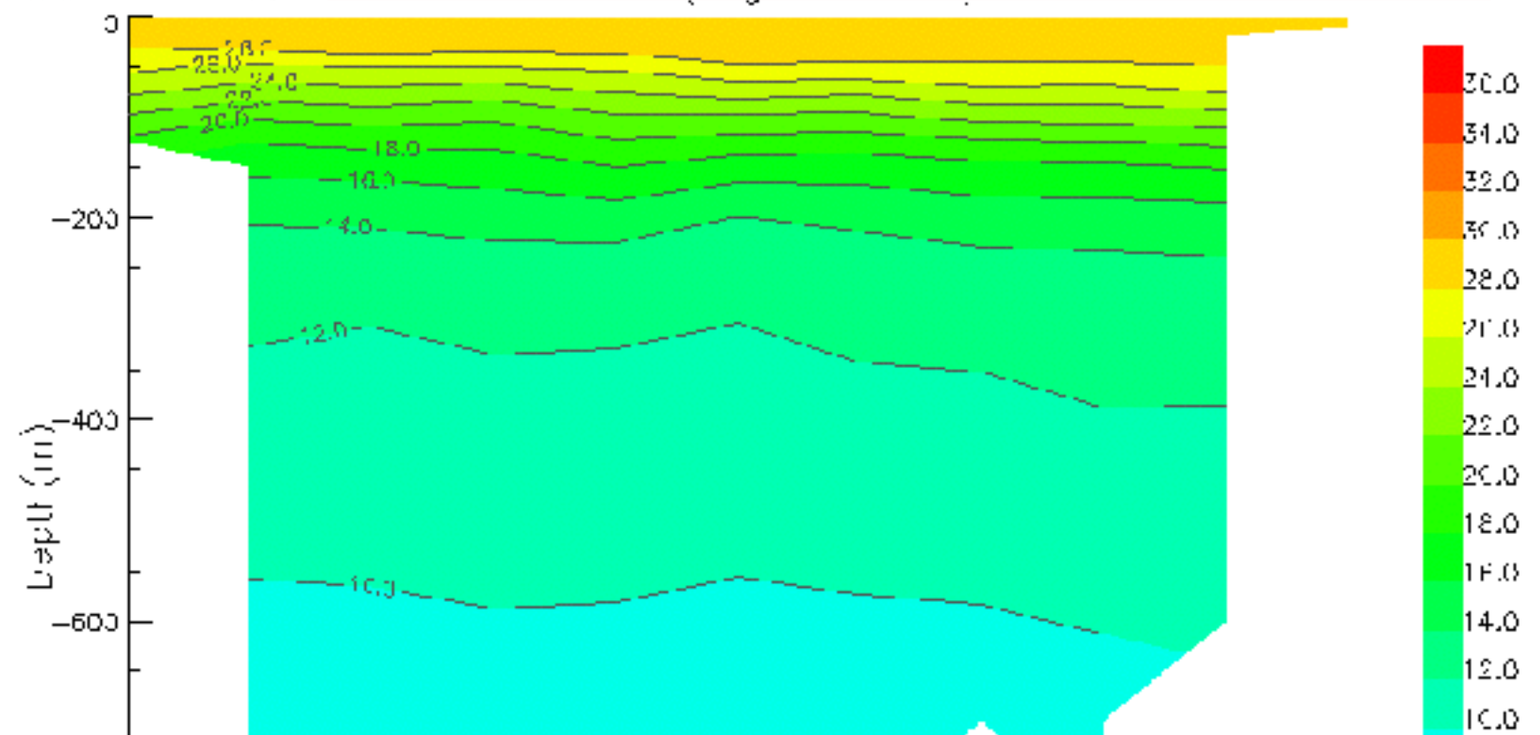
SWH had been compared with typhoon pathways. The results showed the area that SWH higher than 4 meters (green-red) showed the same trend of typhoon pathway that showed by Thai Meteorological Department

Hence, SWH could be the choice to make a decision to conduct the field trip



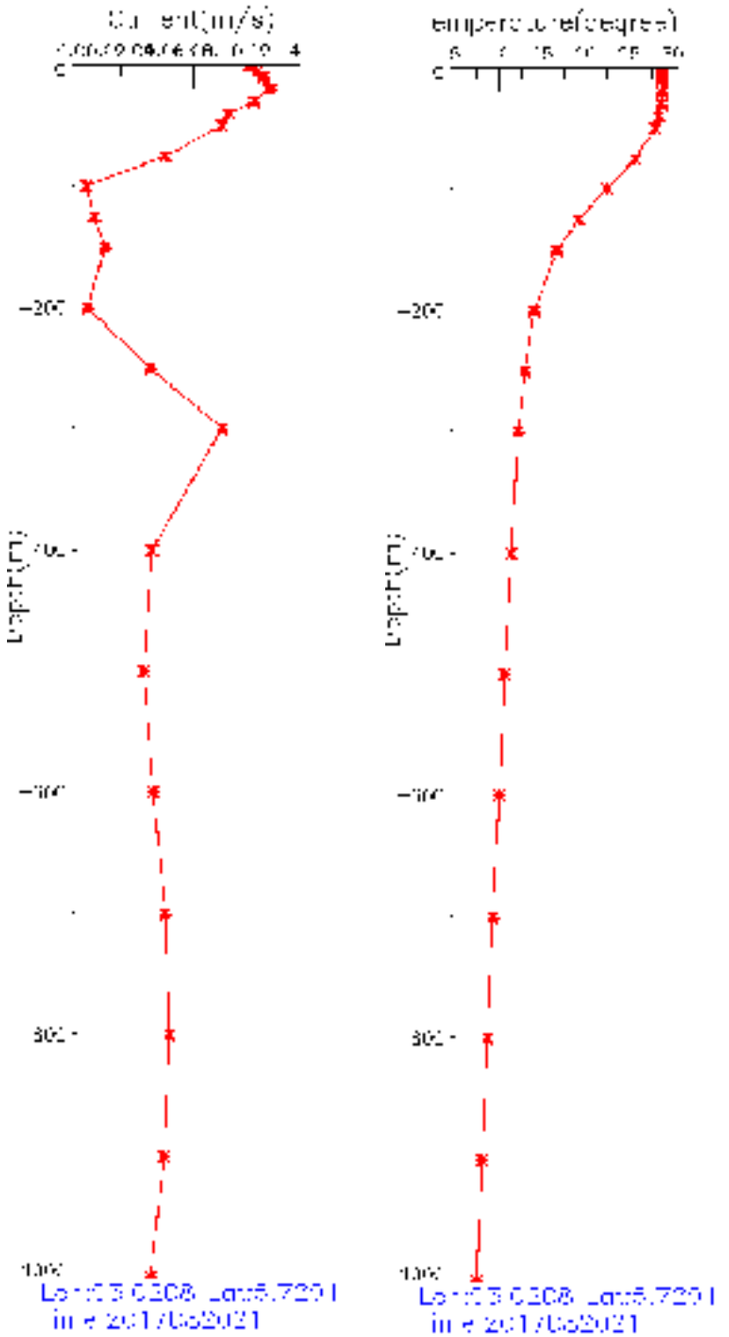


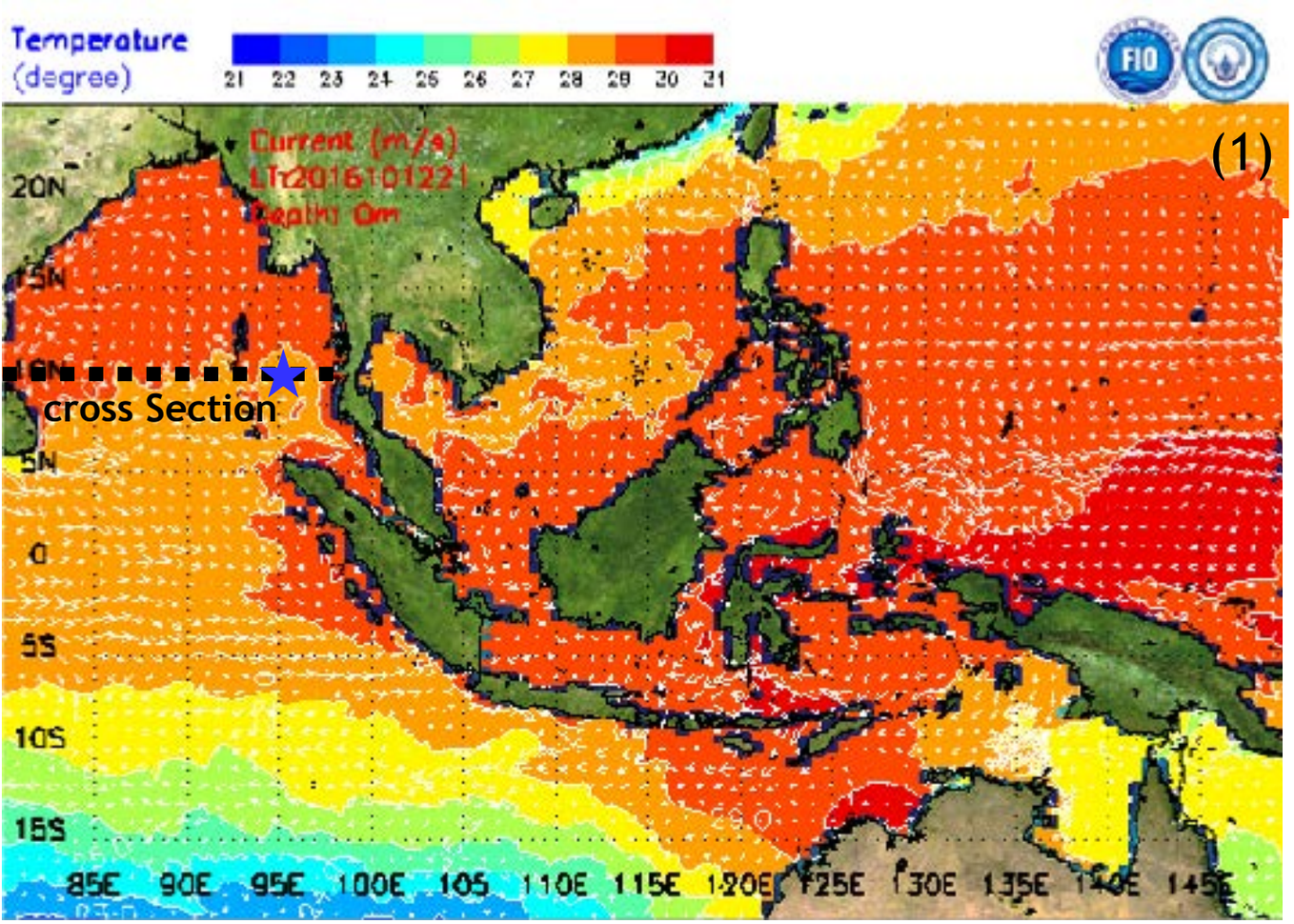


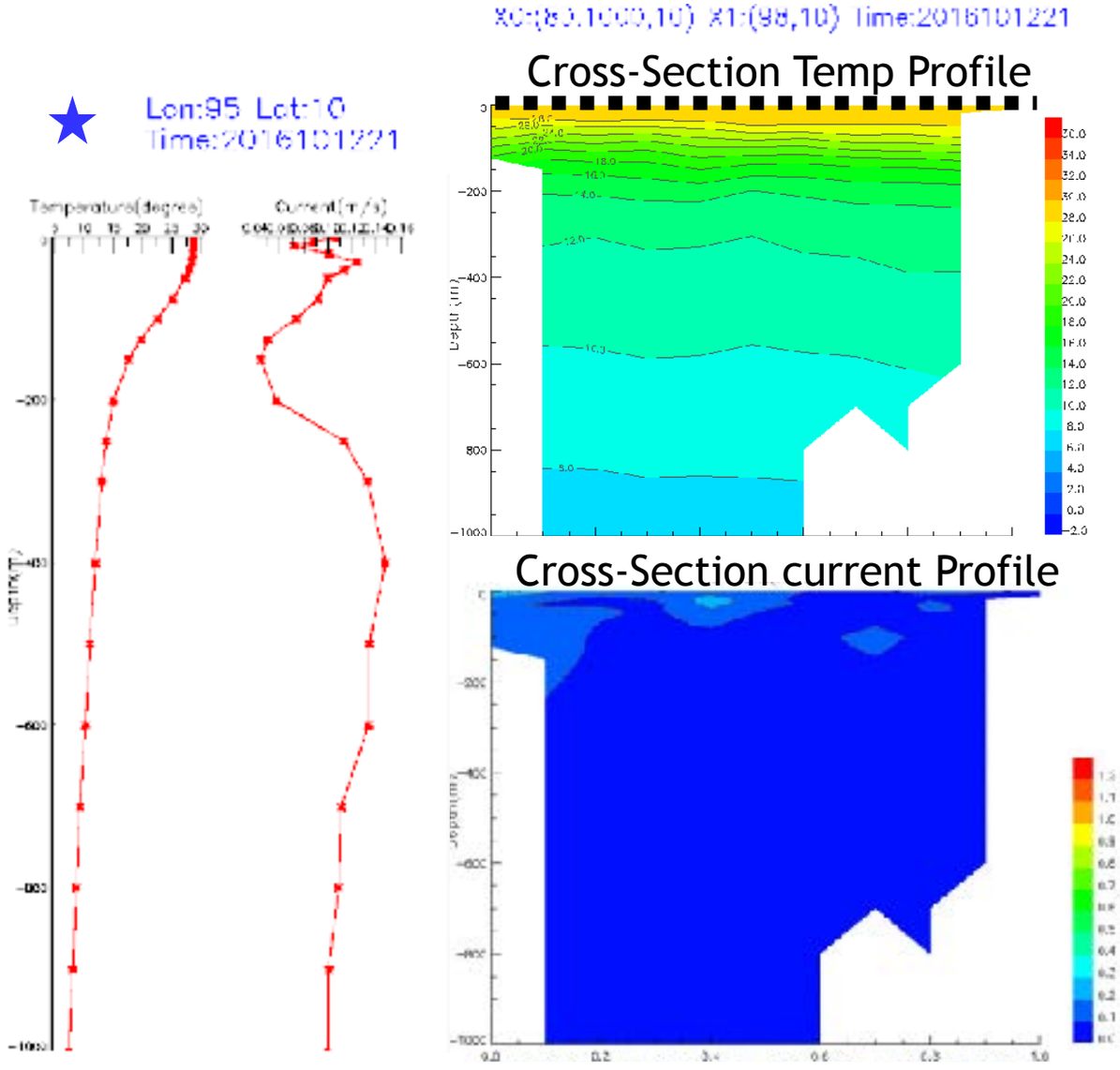


Temperature and Current

could be showed by profiler and cross section





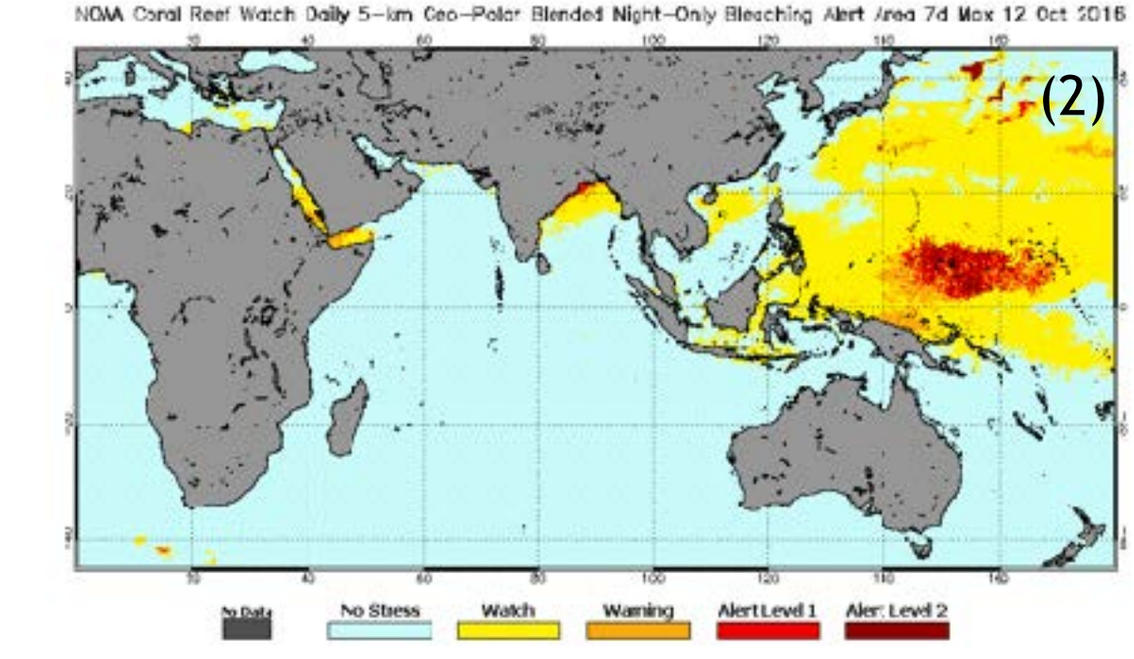


Temperature and Current

At 0 meter depth where sea temperature higher than 31 degree Celsius (1) tend to make coral bleaching. The ensemble comparable with https://coralreefwatch.noaa.gov (2)

Sea surface temperature monitoring would be benefit for coral bleaching alarming system in Thailand in near future.

Moreover, profile and cross-section data are beneficial for fisheries and deeply research.



7

MRDS

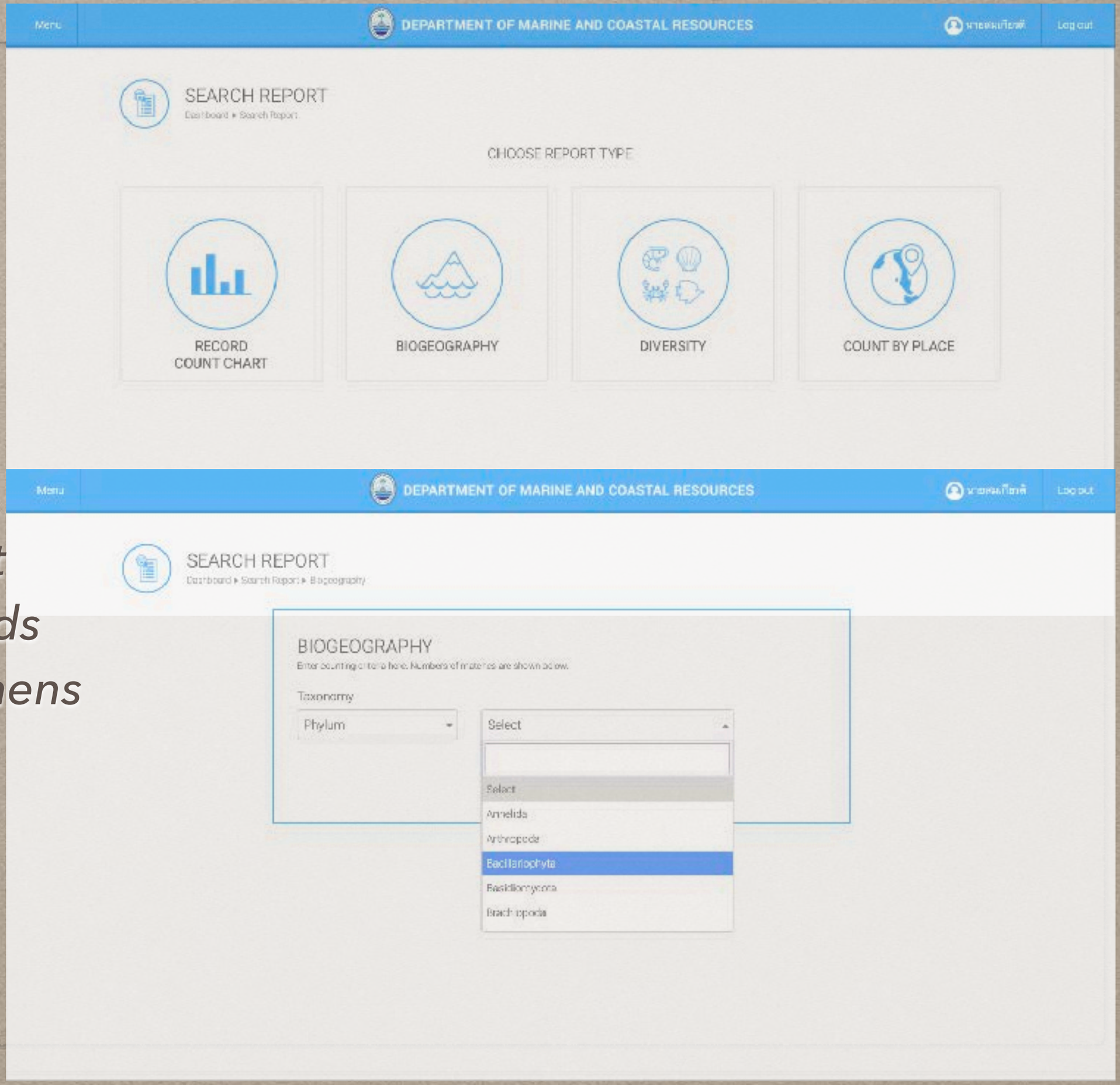
Marine Resources Database System

ฐานข้อมูลสิ่งมีชีวิตทางทะเล

-2017-present

-25,876 records

-2,673 specimens with photos



8

TCC

Thailand Coastal Cleanup

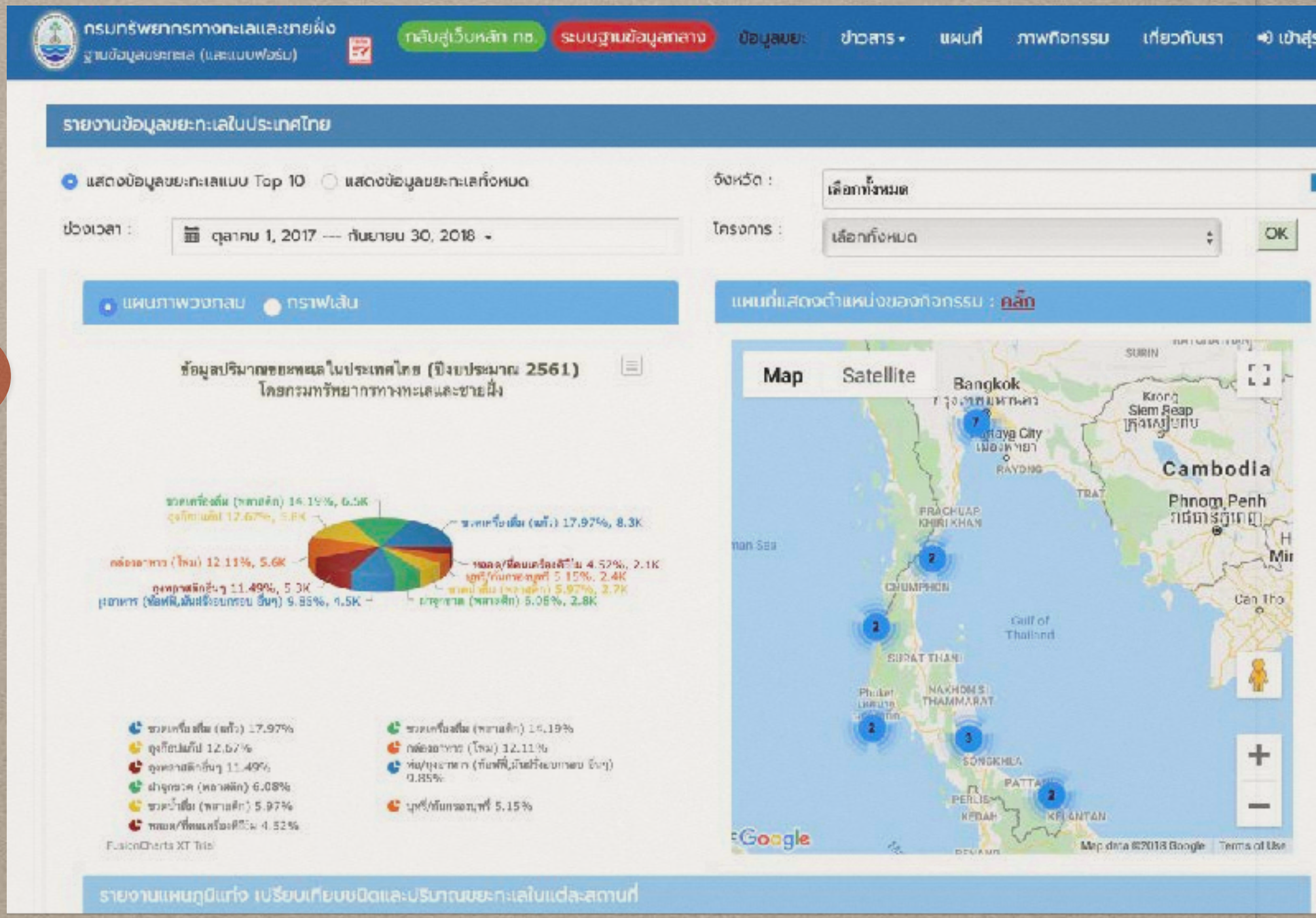
ฐานข้อมูลขยะทะเล

9

AB

Artificial reef – Buoy

ฐานข้อมูลปะการังเทียม และทุ่นในทะเล

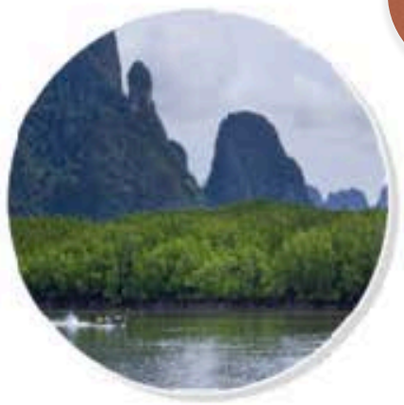


10

e-PM

e-Permission
on Mangrove Area
ขออนุญาตใช้ประโยชน์
ในพื้นที่ป่าชายเลน

11



MgIS

Mangrove Information System
ระบบรายงานผลการปฏิบัติงาน
ด้านทรัพยากรป่าชายเลน

12

CN

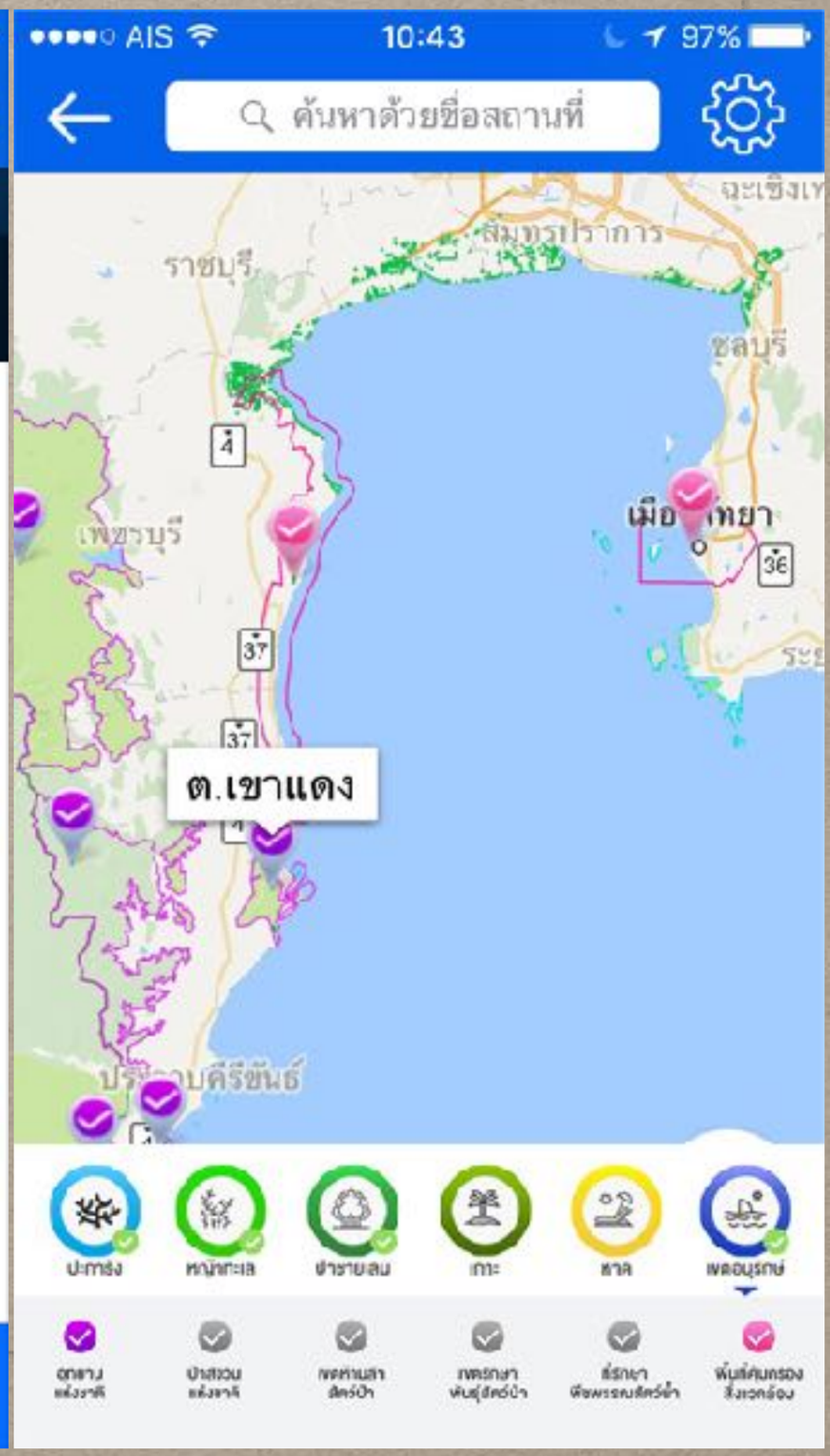
Conservation Network
ฐานข้อมูลกลุ่มเครือข่ายอนุรักษ์

13

MR

Marine Rangers
อาสาสมัครพิทักษ์ทะเล

Mobile App: *iOS & Android*



THANK YOU

http://marinegiscenter.dmcr.go.th