

Problems of satellite data delivery and its solution way in the FEB RAS (Far Eastern Branch of Russian Academy of Sciences) Centre for Regional Satellite Environment Monitoring

A. I. Alexanin, M. G. Alexanina, P.V. Babyak, M. V. Kruglov

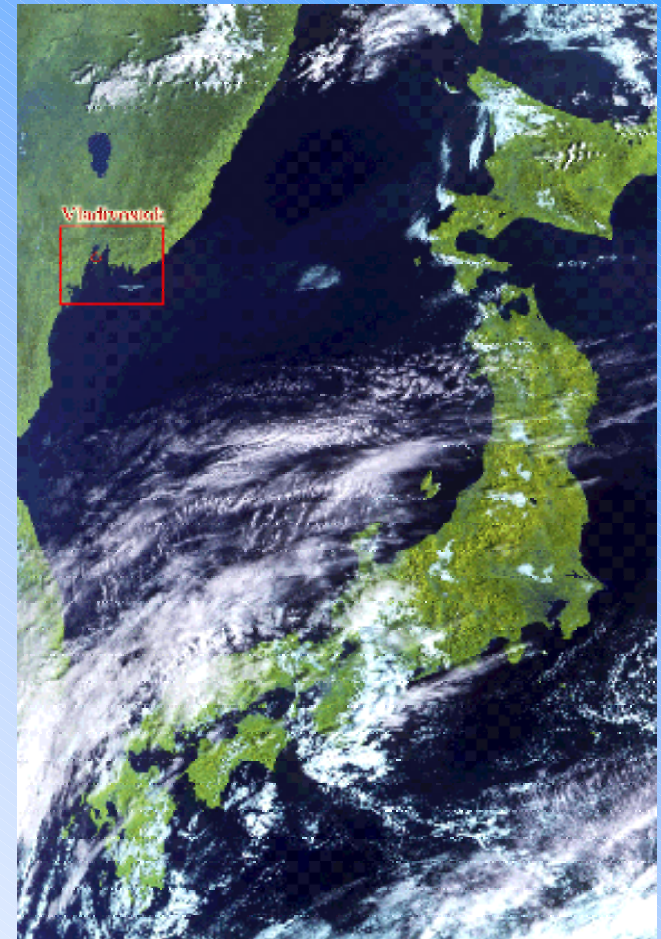


Institute of Automation and Control Processes,
Far-Eastern Branch of
Russian Academy of Sciences,
(IACP FEB RAS)
690041, Vladivostok, Radio Street, 5, Russia.
E-mail: aleks@satellite.dvo.ru

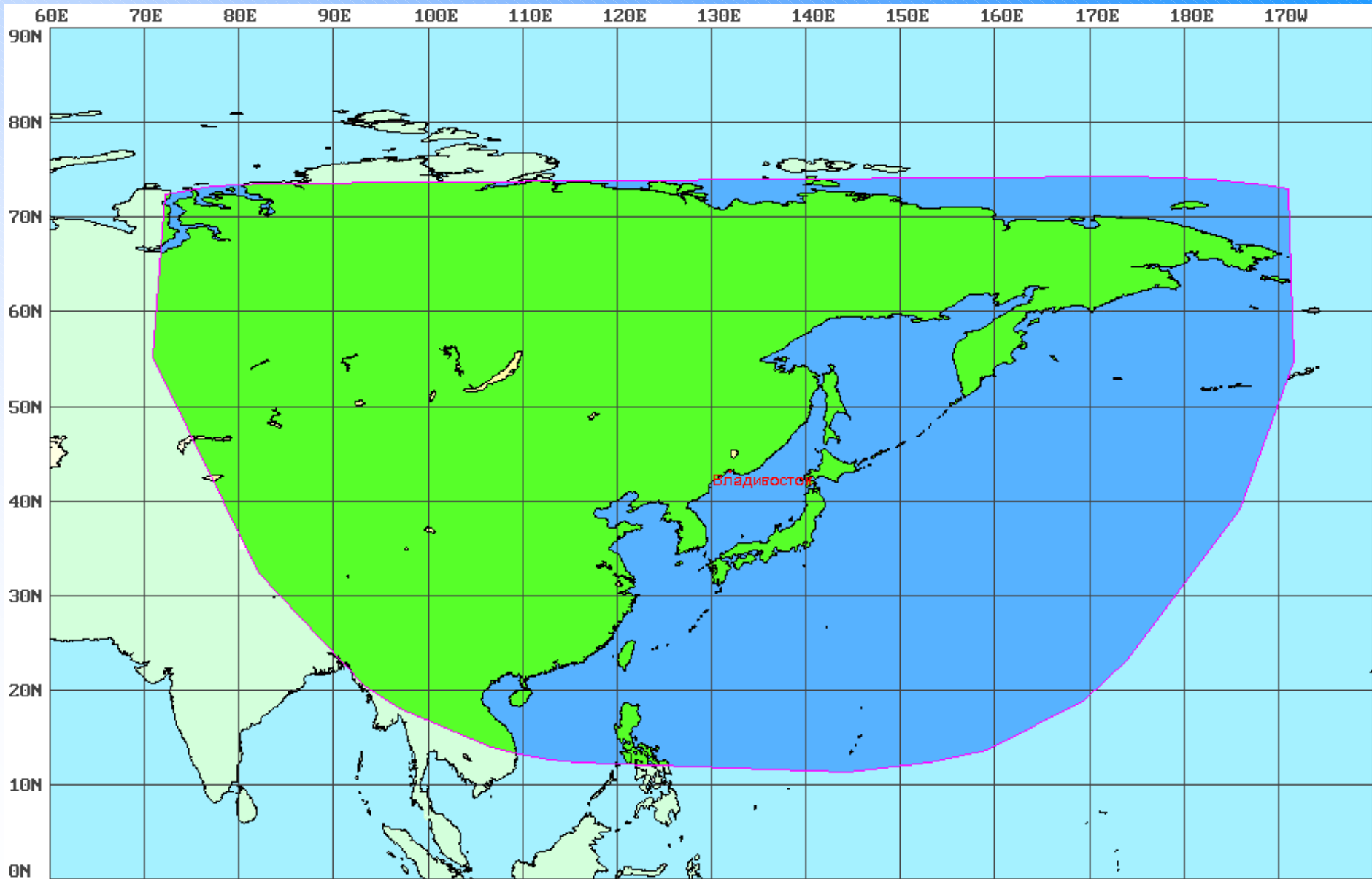
The FEB RAS Center for Regional Satellite Monitoring of Environment was created on the base of Satellite Monitoring Laboratory of IACP FEB RUS at 1999.

The purpose of the Center is to receive, process, deliver and acquire of satellite data for research and economic applications.

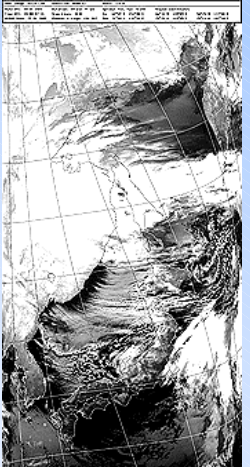
The Center and its data sets have been registered in Global Change Master Directory ((GCMD) NASA subdivision) as Satellite Monitoring Laboratory, Institute of Automation and Control Processes, Russian Academy of Sciences (SML/IACP/RAS)



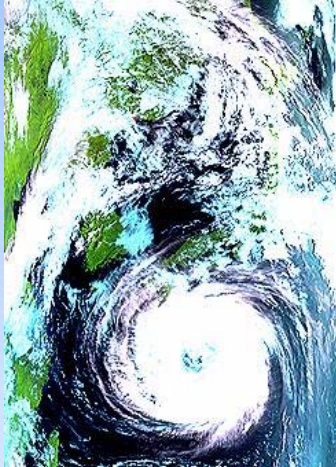
Observation area (PO satellites)



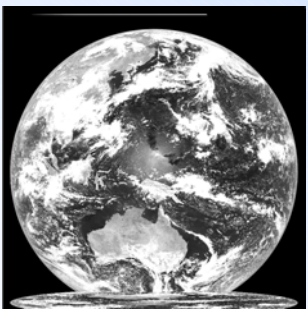
Satellite data reception



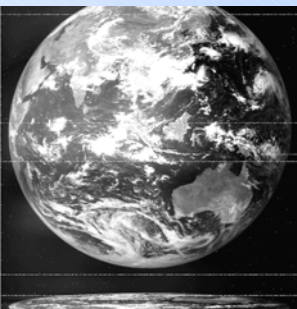
NOAA



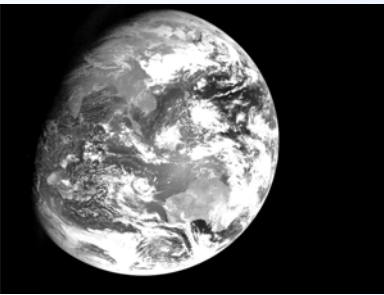
FY-1D



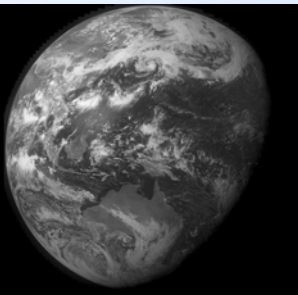
GMS-5



FY-2B



FY-2C

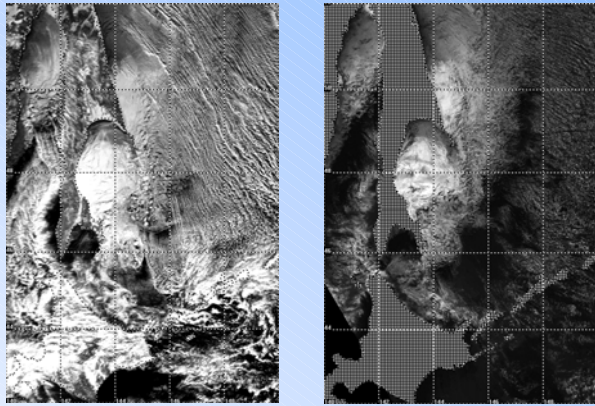


MTSAT-1R

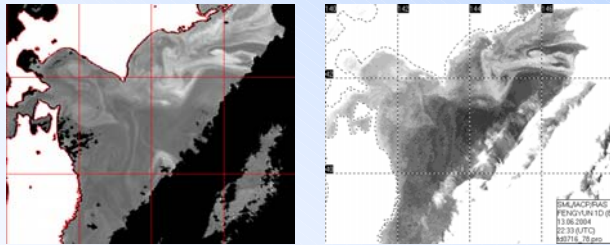
At the present time the FEB RAS Centre allows to receive and process high-resolution data of polar-orbital satellites **NOAA, FY-1C, FY-1D, SeaStar/SEAWIFS,** as well as geostationary satellites **FY-2C and MTSAT-1R** data for satellite monitoring of ocean and atmosphere.

Joint processing of various satellite data allows to get more complete information in time and space about sea surface and atmosphere phenomena.

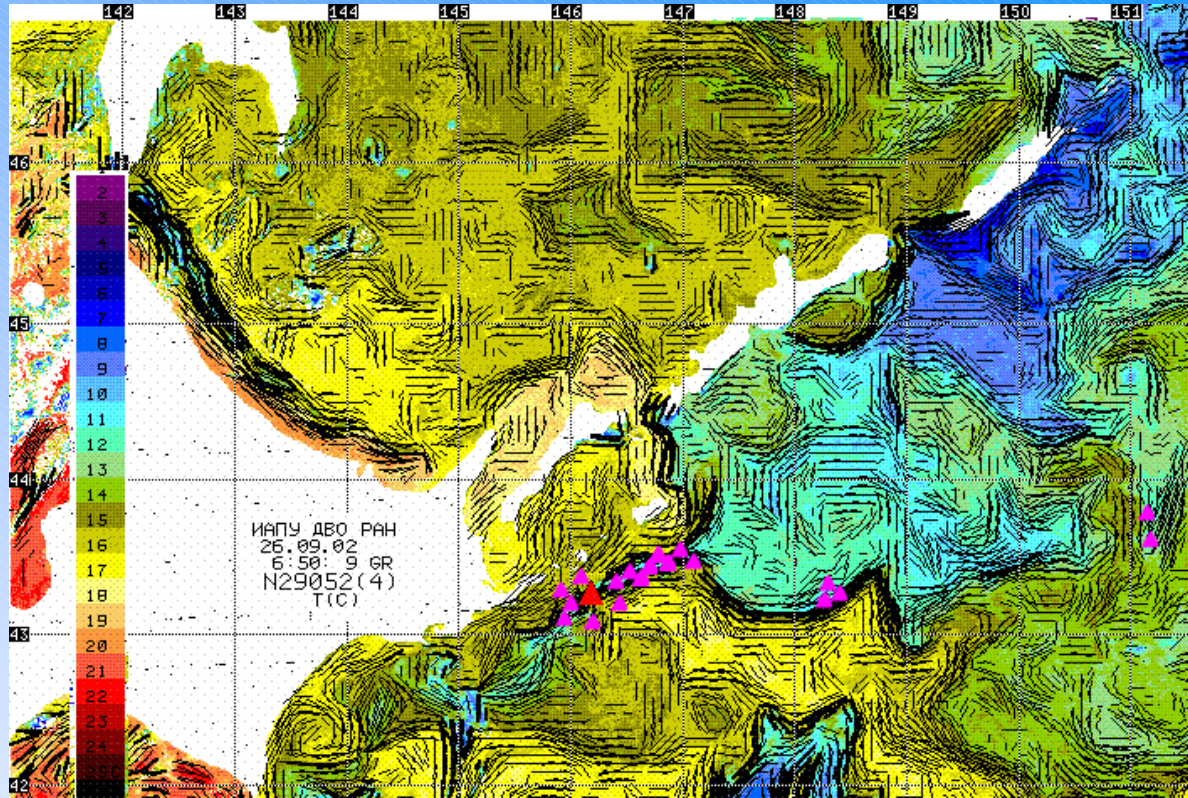
Research and development



1 a) Single image b) Processed image
Ice edges detection in overcast case



2 Observation of plankton concentration viewed on FY-1D data

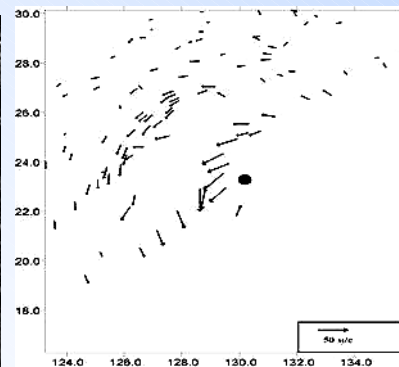
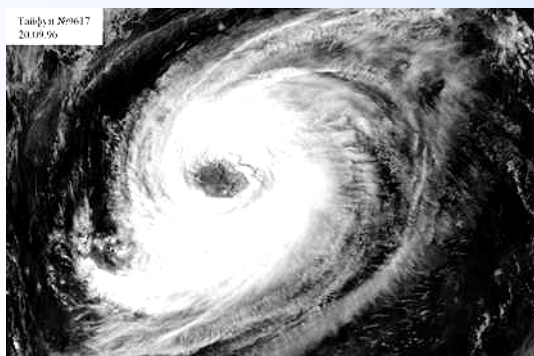


4 Sample of date using – search of fish location.

Comfortable conditions for fish:

- T~10-13°C
- thermal front
- tail flow

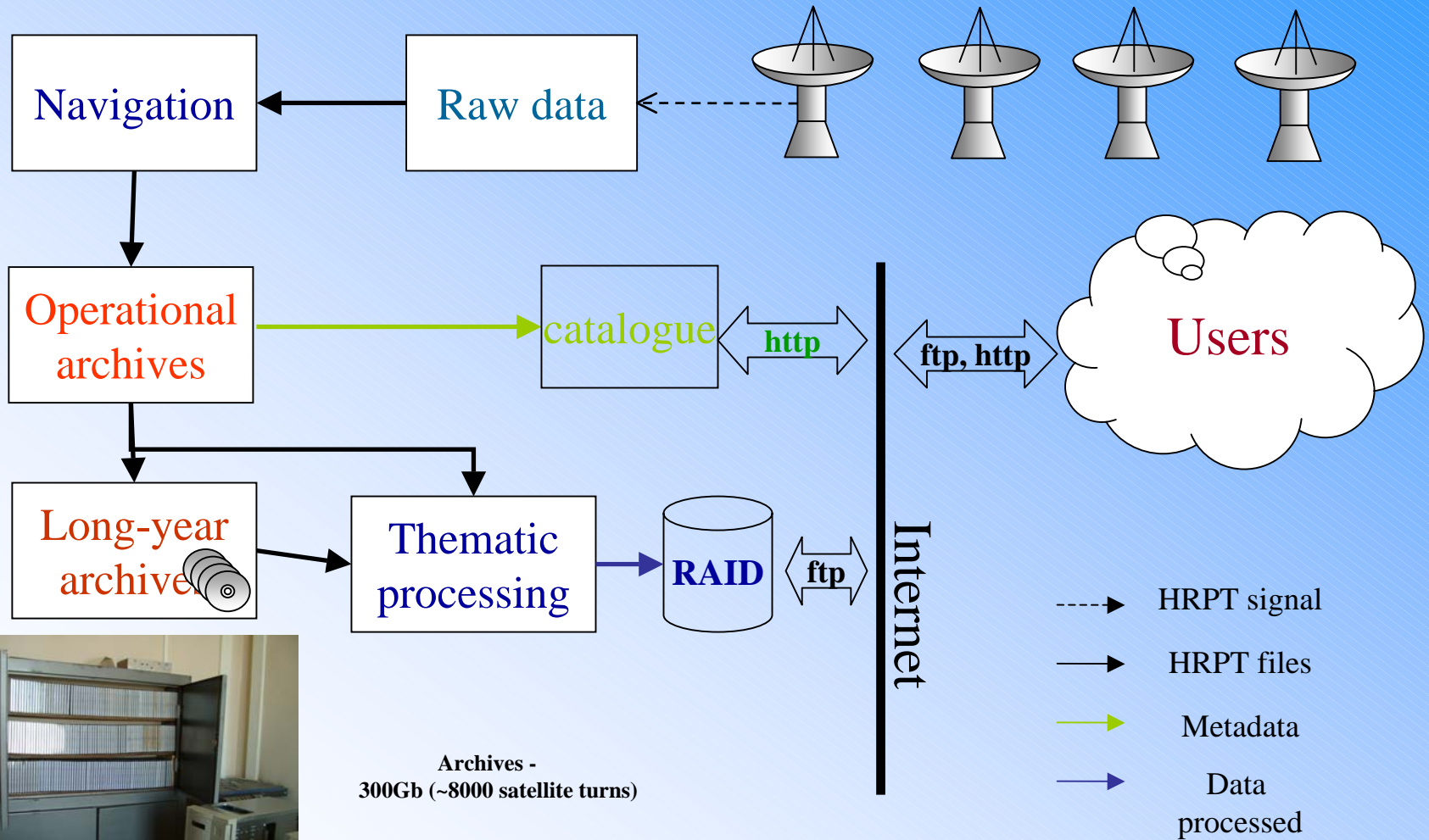
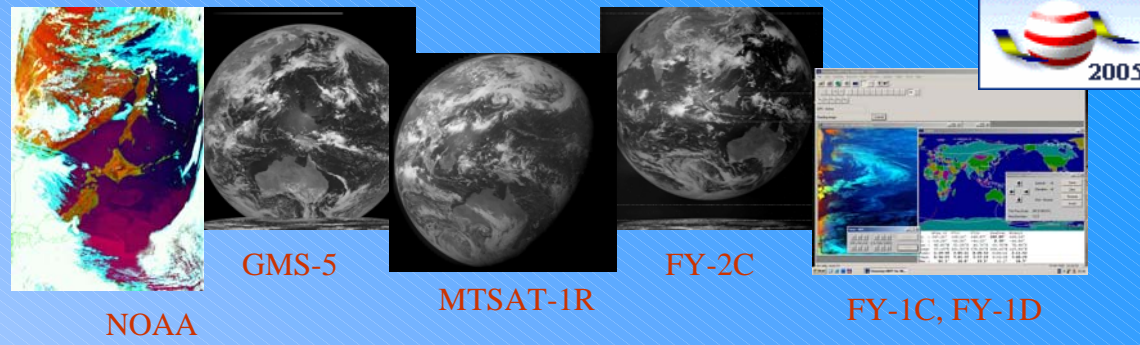
Triangles are the fine catches



3 Estimation of typhoon pressure difference

Diagram of Center data flow

Archiving, data access and catalogue generation



Archives - 300Gb (~8000 satellite turns)

- > HRPT signal
- > HRPT files
- > Metadata
- > Data processed

Main problems:

Metadata access:

A decision realized in Global Earth Observation Information Systems such as EOSDIS(NASA) and INFEO/EOPortal (ESA) is the more reasonable for terminal users. The problem is to adopt existing software for integration in these systems and to generate data and metadata according to formats needed.

Data access:

- selection of the way to data access (OpenGIS or ESIMO);
- control and forming of user requests on satellite data processing ;
- determination of data formats for thematic processing of the satellite information with popular software (RDASD, ENVI, IDL, MATLAB ...).

System of metadata ordering

Search parameters

Basic info

Time interval
YYYY-MM-DD HH:MM
From
To

Required channels
 1 2 3 4 5

Only from archive with ID

Only from satellites

- NOAA 9
- NOAA 10
- NOAA 11
- NOAA 12
- NOAA 14
- NOAA 15
- NOAA 16
- NOAA 17
- NOAA 18

Covered region

Any

Standard

Defined manually

Bounds Angles

Bounds

min. longitude max. longitude
max. latitude
min. latitude

Angles

latitude longitude
latitude longitude
latitude longitude
latitude longitude

To access to metadata the WEB interface has been developed both on interactive and on automatic base.

Data acquisition of high resolution satellite information has been begun since 1993.

There are follow data in archives:

- NOAA-(from 9 up to 18) satellites (radiometers AVHRR/HRPT TOVS/ATOVS)
- FY-1D (CHRPT data)
- GMS-5 (radiometer S-VISSR)
- FY-2B (radiometer S-VISSR)
- FY-2C (HiRID data)




To access to satellite data of the FEB RAS Centre the site was constructed (www.satellite.dvo.ru).

The site provides an access to up-to-date satellite data (the latest NOAA and FengYun), archive data and control of the FTP server operability.

- FTP-access
- [Search in Archive](#)
- Programm for visualisation satellite data
- Search



- **Possibilities**
- Ordering the data



Center for Regional Satellite Monitoring of Environment, Far Eastern Branch of Russian Academy of Sciences

ИСМ ИАПУ РАН
SML IACP RAS

Home | News | Documents | Ordering | Forums

Navigation

- Approach to monitoring
- Operation of satellite and sensors
- Supply and distribution of products
- Arrangement of in situ data
- Approach to research and development
- Contact information

➤ Gallery of satellite scenes

- FTP-access
- Search in **Archive**
- Programm for visualisation satellite data
- Search

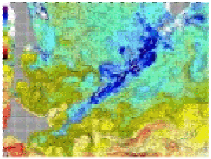
Possibilities

- Ordering the data
- Add link

Администрирование

- Администрирование

From Gallery



Center for Satellite Monitoring

The Center for Regional Satellite Monitoring of Environment was created on the base of Satellite Monitoring Laboratory of IACP FEB RUS at 1999. The purpose of the Center is to receive, process, deliver and acquire of satellite data for research and economic applications. The Center and its data sets have been registered in Global Change Master Directory (NASA subdivision). At the present time the Center carries out receiving and processing two types of high resolution satellite data: data of the polar satellites (NOAA, FY-1D) for sea surface observation and the data of geo-stationary meteorological satellites (FY-2C) for atmosphere monitoring. Joint processing of various satellite data allows get more complete information in time and space about sea surface and atmosphere phenomena.

[View: All Visitors - Unlimited - Edit]

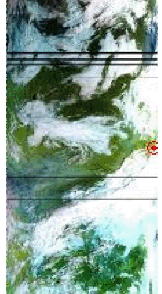
Regional Satellite Monitoring of Environment 27.04.2004

Regional satellite monitoring of environment (RSM) is based on regular acquisition and real-time processing of digital multi-channel satellite information.

- **Approach to monitoring**
 - Main directions of the Satellite Centre operation:
 - ocean and atmosphere phenomenon research;
 - satellite information support of scientific researches and fishery;
 - natural disaster monitoring (typhoons, forest fires, etc.).
- **Operation of satellite and sensors**
 - The basic sources of high resolution information are NOAA and FY-1D polar orbiting satellites and geostationary FY-2C satellite for our region.
- **Supply and distribution of products**
 - There are three kinds of information we produce now:
 - look-up data (catalogue of satellite sessions; observation images in any graphical format; detailed observation images of infrared data);
 - basic production (calibrated single-channel Mercator projected images; momentary (single-session) sea surface temperature images; thermal sea surface structure charts (SSTS) – statistical significant thermal contrast orientations);
 - thematic information processed for concrete users (temperature charts of different scales and time averaging; sea surface velocity estimations; composed SSTS charts; products of sea surface synoptic analyses; forest fires charts, typhoon parameter estimations).
 - Data request of a user is realised with INTERNET facilities. E-mail, INTERNET, INTRANET and INMARSAT may be used for data delivery.
- **Arrangement of in situ data**
 - In situ data are used for verification of different charts created on the base of satellite information. Verification procedure is used for calibration of algorithms for satellite data processing.
- **Approach to research and development**
 - Main directions of Satellite Centre development are increasing of data sources and creation new algorithms for data processing.


Scenes

Data of FengYun 1D satellite
19.09.2005 11:15
of local time
Scene include
Vladivostok town



refreshed 21.09.05
13:29

Data of NOAA satellite
21.09.2005 23:22



refreshed 22.09.05
12:01

Output data formats

For users output data are delivered as projections (Mercator /Equi-intercept) in forms:

- 1. digital array F34_1 - 1byte on pixel
 F43_2 - 2 bytes on pixel***
- 2. Text array – list of geo-coordinates and pixel values***
- 3. Graphical files (bmp, pcx , gif ... etc)***

Data output features			
Projection	Type	Channels 1,2,3, 4,5,all	Format bmp,pcx, txt,f34_1(.prc, .pr5),f34_2(.pro)
Mercators: ○ Equi-intercept: ○	Color: ○ Grayscale: ○	□ 1,3 □ 2,4 □ 5,all	□ bmp, f34_1 □ pcx, f34_2 □ txt

FEB RAS Satellite Center was organized for data processing and delivery to different users in real time.

FTP://FTP.SATELLITE.DVO.RU/
FTP://FTP.SATELLITE.DVO.RU/PUB/DATA

are available **for all users**

Personal folder and possibility to make request on data processing are available **for registered users**

Индекс "ftp://ftp.satellite.dvo.ru/pub/Zakaz"

[Перейти в каталог на уровень выше](#)

22	25.06.05 16:35:00
23	25.06.05 16:35:00
24	25.06.05 16:35:00
25	25.06.05 16:35:00
26	25.06.05 16:35:00
27	25.06.05 16:35:00
28	25.06.05 16:36:00
29	25.06.05 16:36:00
30	25.06.05 16:36:00

Индекс "ftp://ftp.satellite.dvo.ru/"

[Перейти в каталог на уровень выше](#)

[pub](#) 26.09.05 17:15:00

Индекс "ftp://ftp.satellite.dvo.ru/pub/data"

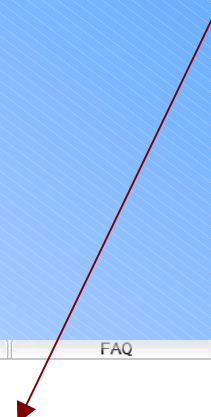
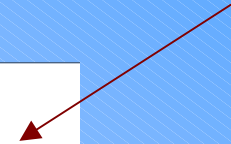
[Перейти в каталог на уровень выше](#)

01-07-05.rar	11826 KB	02.07.05	11:53:00
01-08-05.rar	13959 KB	02.08.05	10:53:00
01-09-05.rar	13664 KB	02.09.05	11:50:00
02-07-05.rar	14542 KB	03.07.05	17:05:00
02-08-05.rar	13368 KB	03.08.05	11:28:00
02-09-05.rar	13088 KB	04.09.05	9:36:00
03-07-05.rar	14394 KB	04.07.05	15:03:00
03-08-05.rar	12628 KB	04.08.05	11:29:00
03-09-05.rar	17529 KB	04.09.05	15:28:00
04-07-05.rar	13880 KB	05.07.05	17:17:00

A remote user is afforded to make a request for satellite data processing through

user's registration

request form



New User Registration (All fields are required)

Nickname:

Email:

Password:

Re-type Password: (Leave blank for auto-generate your password)

You will receive a confirmation email with a link to a page you should visit to activate your account in the next 24 hours.

Notice: Account preferences are cookie based.
As a registered user you can:

- Post comments with your name
- Send news with your name
- Have a personal box in the Home
- Select how many news you want in the Home
- Customize the comments
- Select different themes
- Access to Members List
- Access to User's Custom Box
- some other cool stuff...

Register Now! It's Free!
We don't sell/give to others your personal info.

[User Login](#) | [Logout](#)


Order form Orders FAQ

Organisation name: By user:

Project of current ordering:

№	Date	Coordinates of region	Satellite type	Identifier of session	Data output features			
					Projection	Type	Channels	Format
1	Begin: <input type="text" value="20"/> <input type="text" value="2005"/> End: <input type="text" value="20"/> <input type="text" value="2005"/>	<input type="text" value="90"/> <input type="text" value="70"/> <input type="text" value="180"/> <input type="text" value="15"/>	<input type="text" value="NOAA-1"/> <input type="text" value="not col"/>	<input type="text"/>	Mercators: Equi-intercept:	Color: Grayscale:	<input type="text" value="1-3"/> <input type="text" value="2-4"/> <input type="text" value="5-all"/>	<input type="text" value="bmp_f34_1"/> <input type="text" value="pcx_f34_2"/> <input type="text" value="txt"/>

Additional information:

Add order Time 



Thanks for your attention!