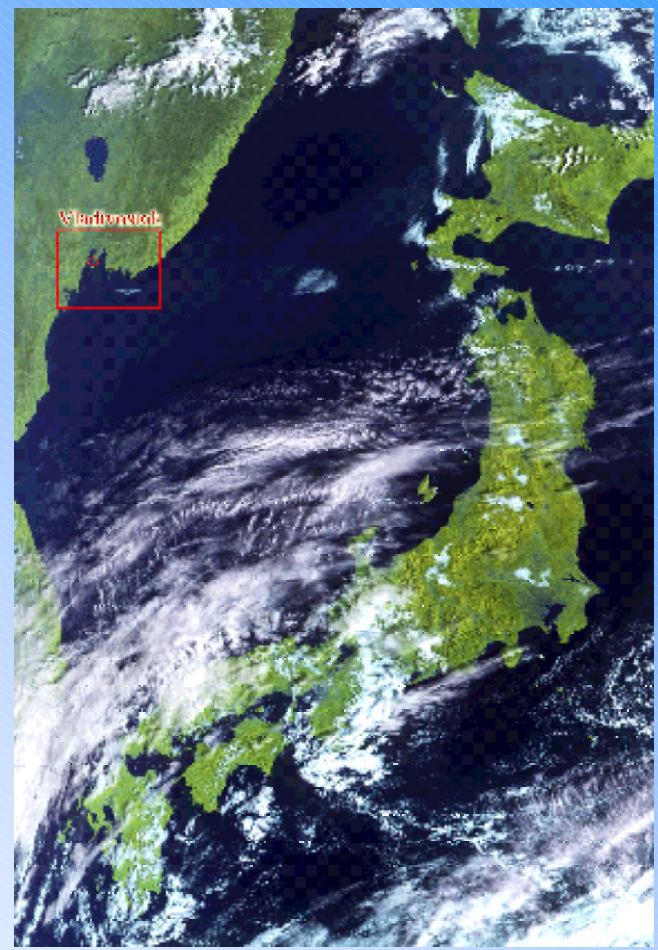
Problems of satellite data delivery and its solution way in the FEB RAS (Far Eastern Brunch of Russian Academy of Sciences) Centre for Regional Satellite Environment Monitoring

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

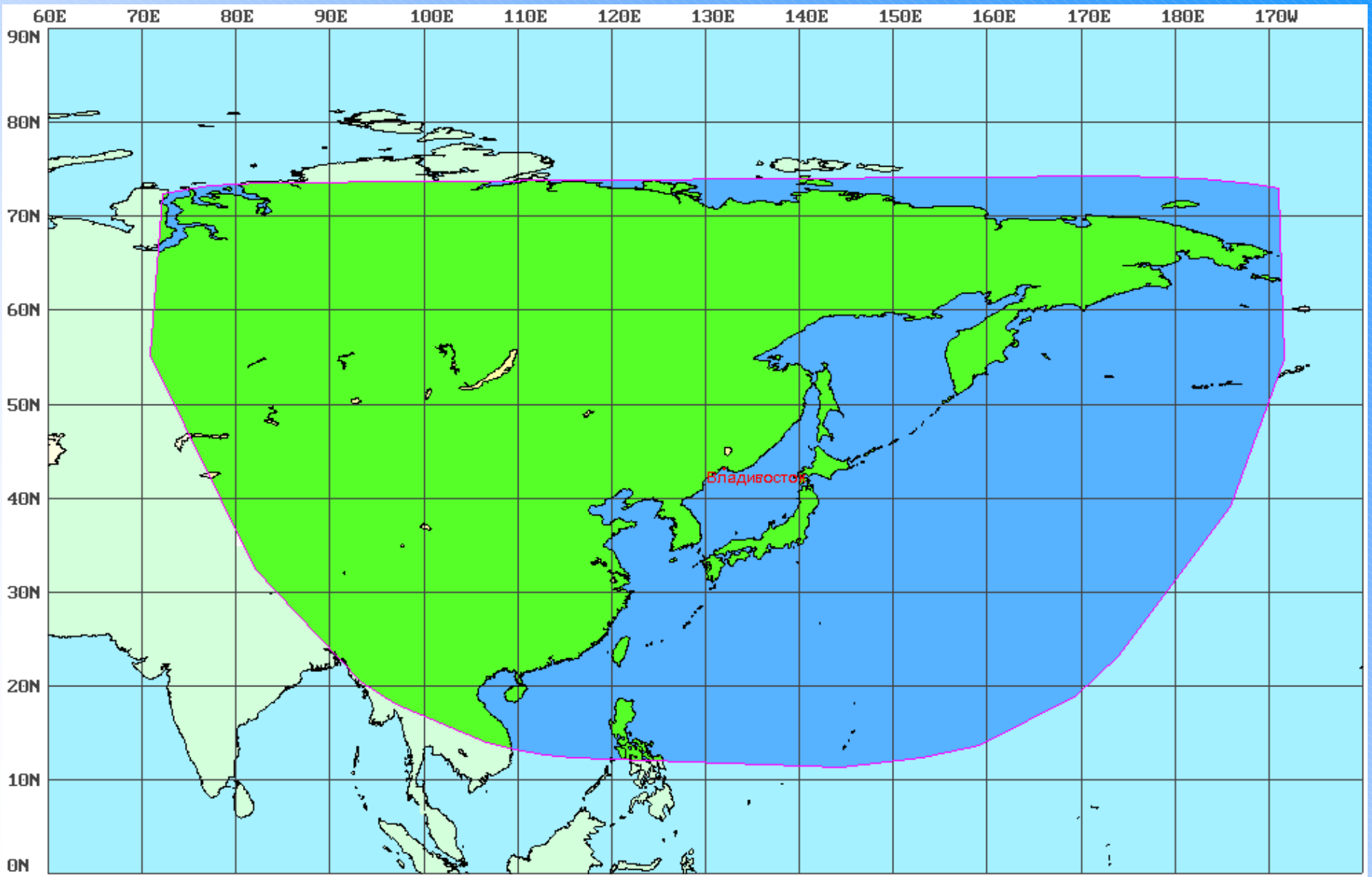


The FEB RAS Center for Regional Satellite Monitoring of Environment was created on the base of Satellite Monitoring Laboratory of IACP FEB RUS at 1999.

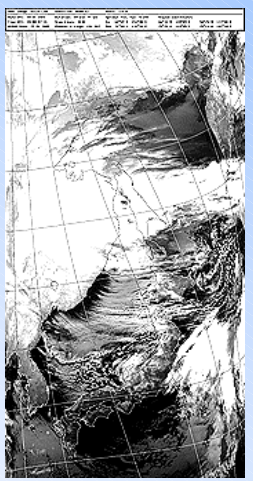
The purpose of the Center is to receive, process, deliver and acquire of satellite data for research and economic applications.

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)

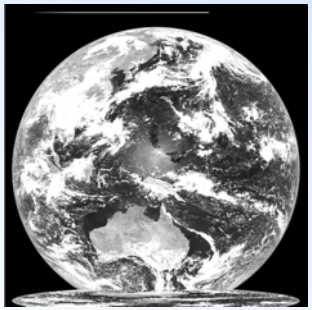


Satellite data reception

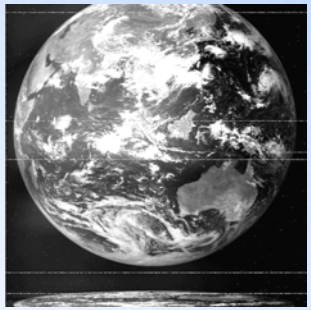


NOAA

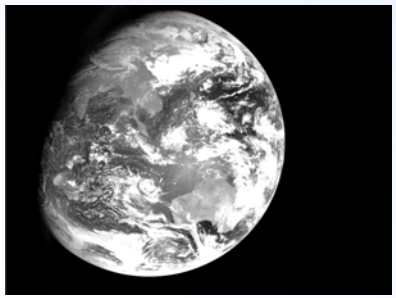
FY-1D



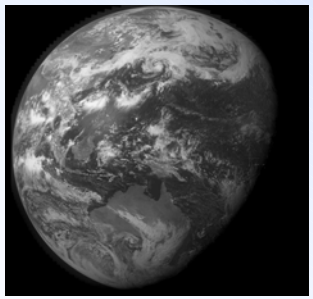
GMS-5



FY-2B



FY-2C

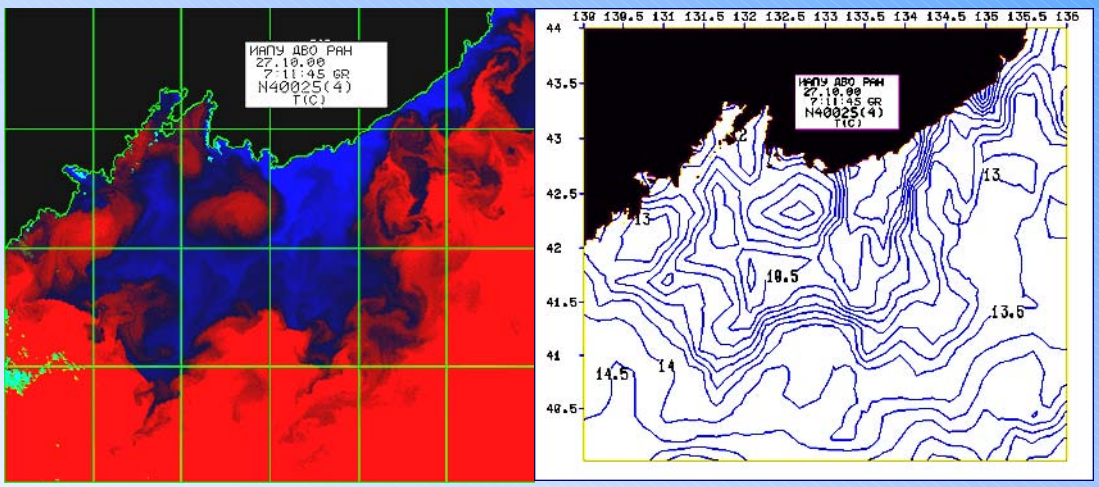


MTSAT-1R

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.

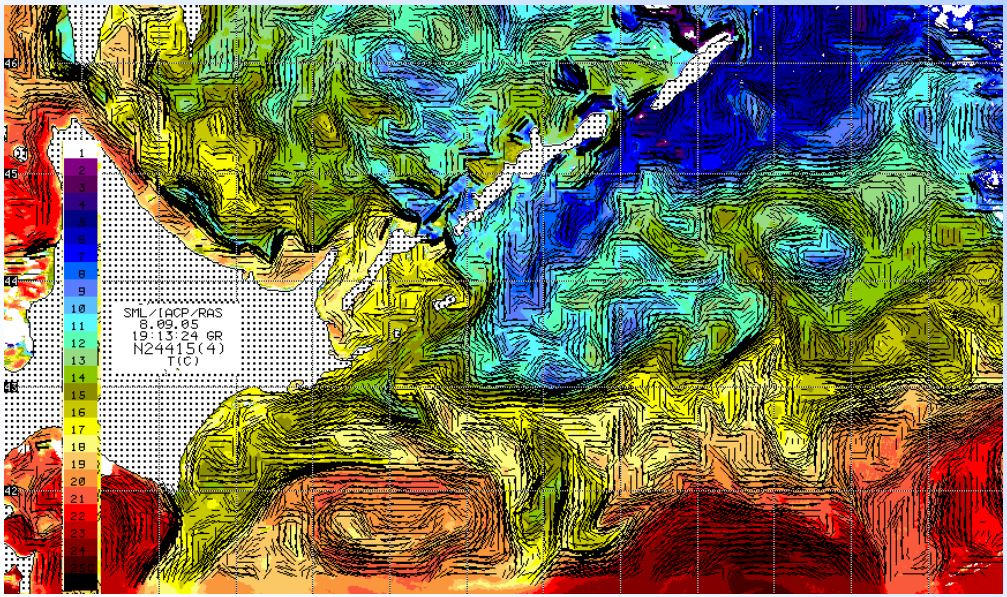
Basic satellite products



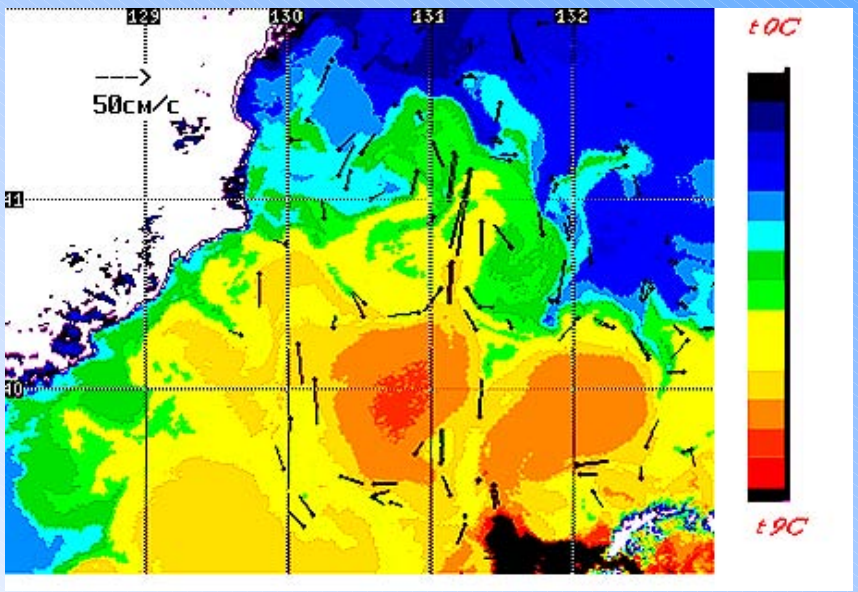
The main purpose:

1)sea surface temperature fields;
2)sea surface circulation;
3)identification of eddies, currents, fronts, ice etc.;
4)correction of ship tracks;
5)typhoon monitoring.

1)Sea surface temperature in colors and isolines

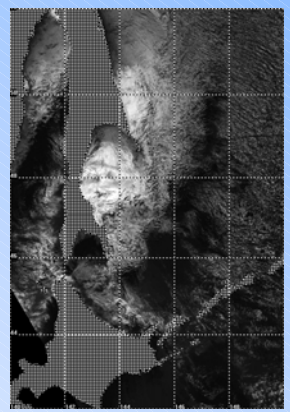


2)Thermal surface structure charts

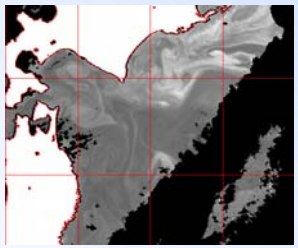


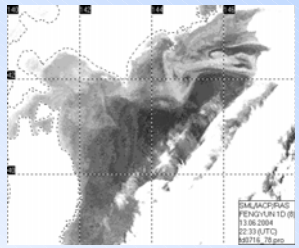
3) Flow current vectors

Research and development

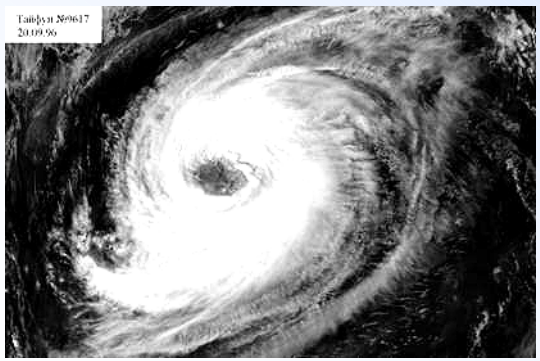


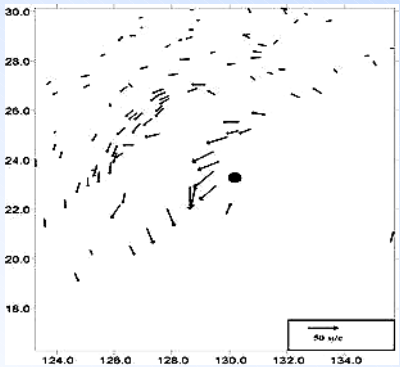
1 a) Single image b) Processed image
Ice edges detection in overcast case



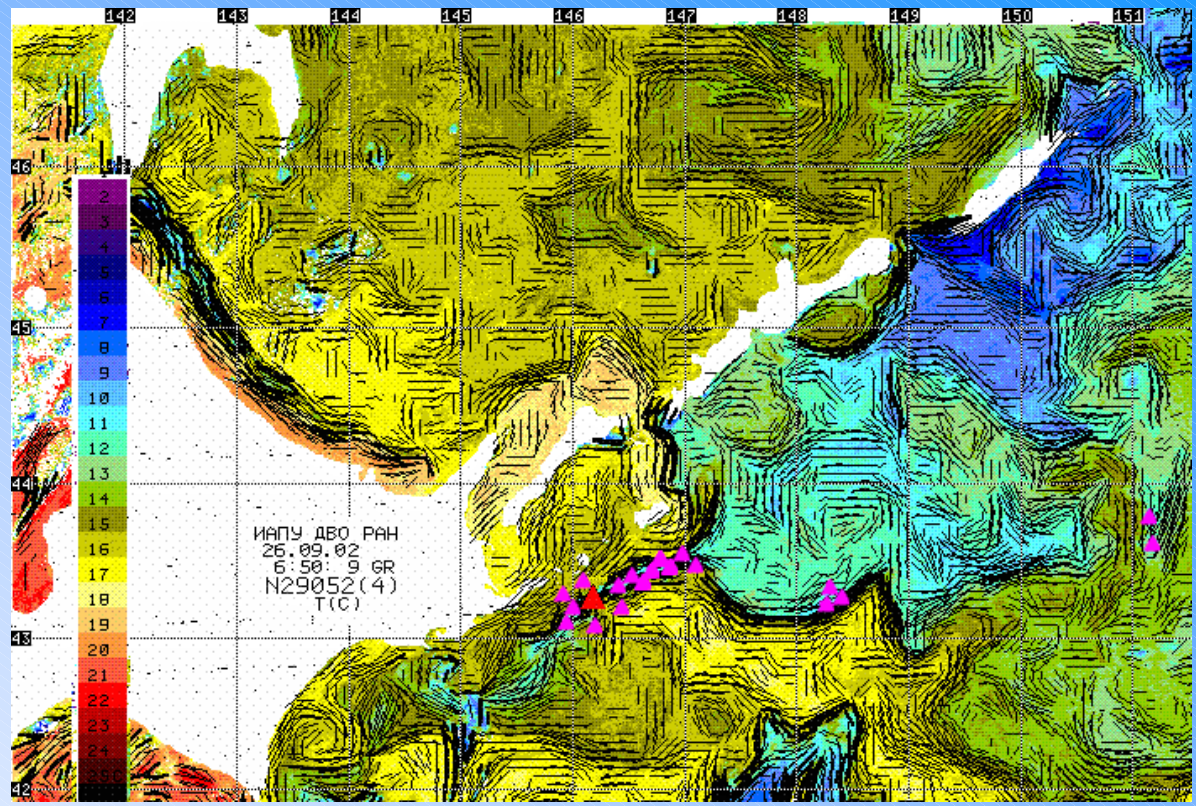


2 Observation of plankton concentration viewed on FY-1D data





3 Estimation of typhoon pressure difference



4 ***Sample of date using – search of fish location.***

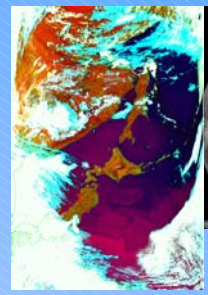
Comfortable conditions for fish:

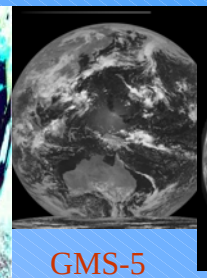
- T~10-13°C
- thermal front
- tail flow

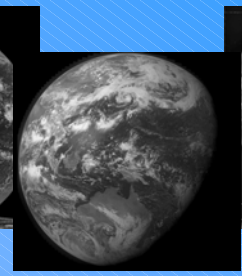
Triangles are the fine catches

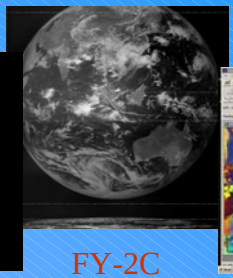
Diagram of Center data flow

Archiving, data access and catalogue generation


NOAA


GMS-5

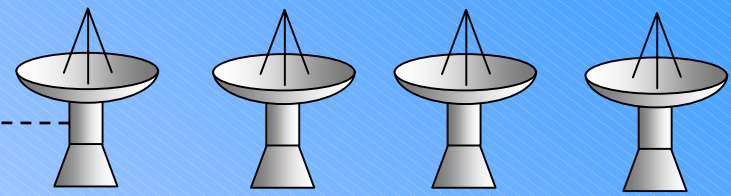

MTSAT-1R


FY-2C


FY-1C, FY-1D

Navigation

Raw data



Operational archives

catalogue

http

ftp, http

Users

Long-year archive

Thematic processing

RAID

ftp

Internet

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: Japanese sea
- Defined manually

Bounds: max. latitude, min. longitude, max. longitude, min. latitude

Angles: 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)

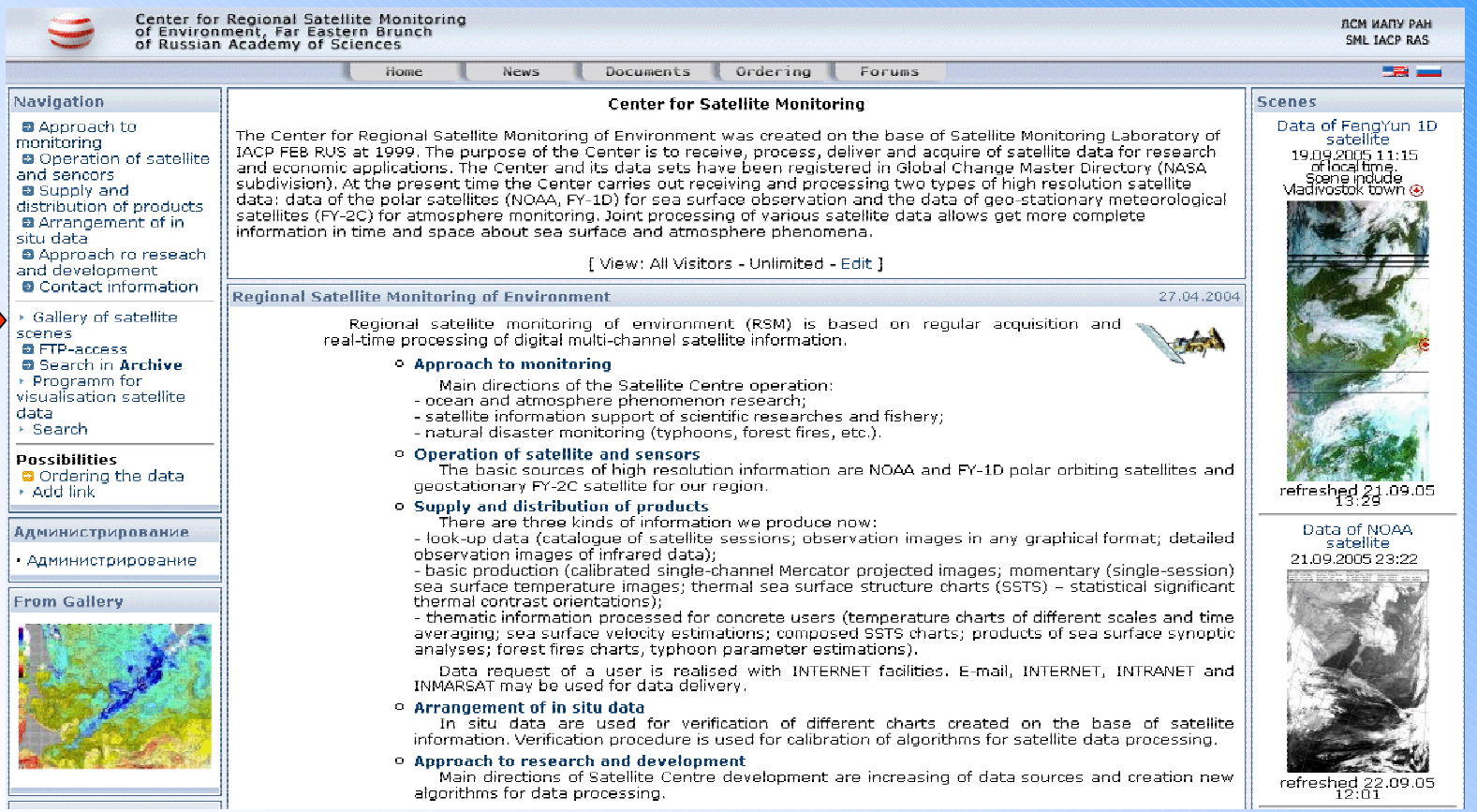
To access to satellite data of the FEB RAS Centre the site was constructed (www.satellite.dvo.ru).

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



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

FTP://FTP.SATELLITE.DVO.RU AND DIFFERENT USERS

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/"

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

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

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)

New User

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 Hom
- 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 | Lost yo

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 1,2,3, 4,5,all	Format bmp,pcx, txt,f34_1(.prc, .pr5),f34_2(.pro)
1	**Begin:** 30 Septe 2005 **End:** 30 Septe 2005	70 80 180 15	NOAA- not sel		Mercators: Equi-intercept:	Color: Grayscale:	1 3 2 4 5 all	bmp f34_1 pcx f34_2 txt

Additional information:

Add order line

Thanks for your attention !