



The utilization of satellite data in weather forecasting of Vietnam

Outline

- General Introduction
 - General information about geography, climate, disaster and satellite department development.
- Satellite receiving and processing station in NHMS of Viet Nam.
 - Transmission facilities and data distribution.
- Using of satellite data and applications.
- Strategies for the future.
- Conclusion.

Introduction

○ Geography:

Area: 331,698 km² (hill and mountain: $\frac{3}{4}$, land: $\frac{1}{4}$ with 2 main delta: Red River Delta in the North and Mekong River Delta in the South), coastline is about 3,444 km.

○ Climate

The North: 4 seasons, whereas The South has 2.

Rainy season: April to October.

Storm and typhoon: June to December.

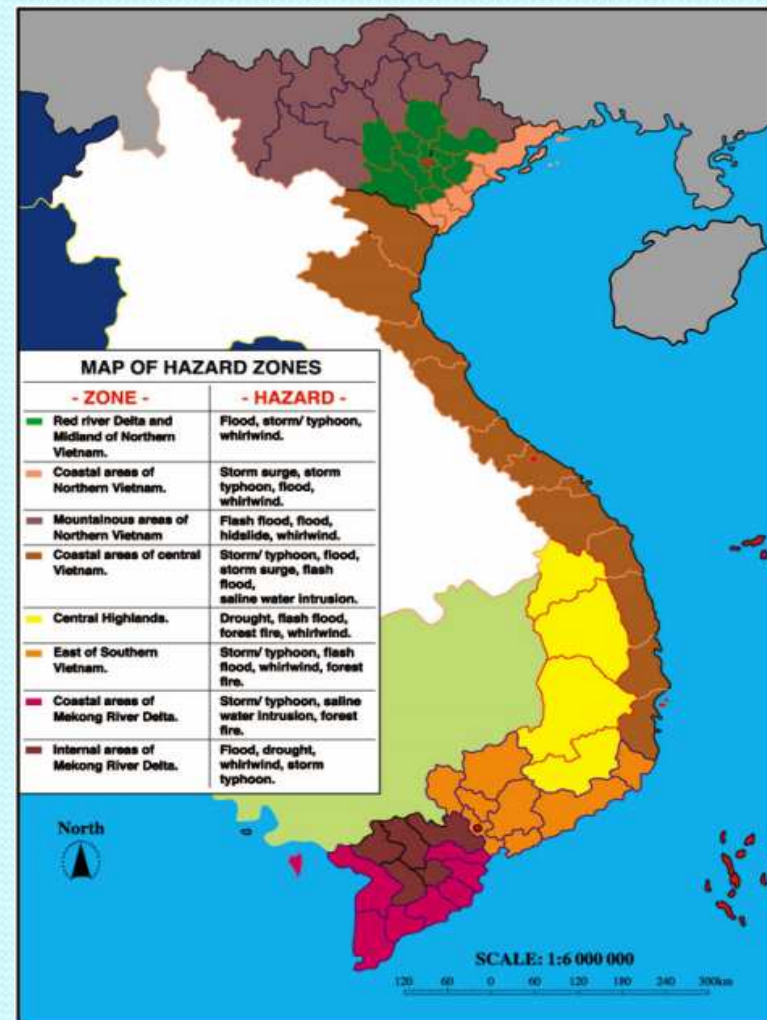


Natural disasters in Viet Nam

Disaster relative frequency in Vietnam can be classified as follows:

High
Flood, Inundation
Typhoon, tropical depression
Flash flood
Tornado
Drought
Medium
Hail rain
Landslide
Forest fire
Salt water intrusion
Low
Earthquake
Accident (technology)
Frost

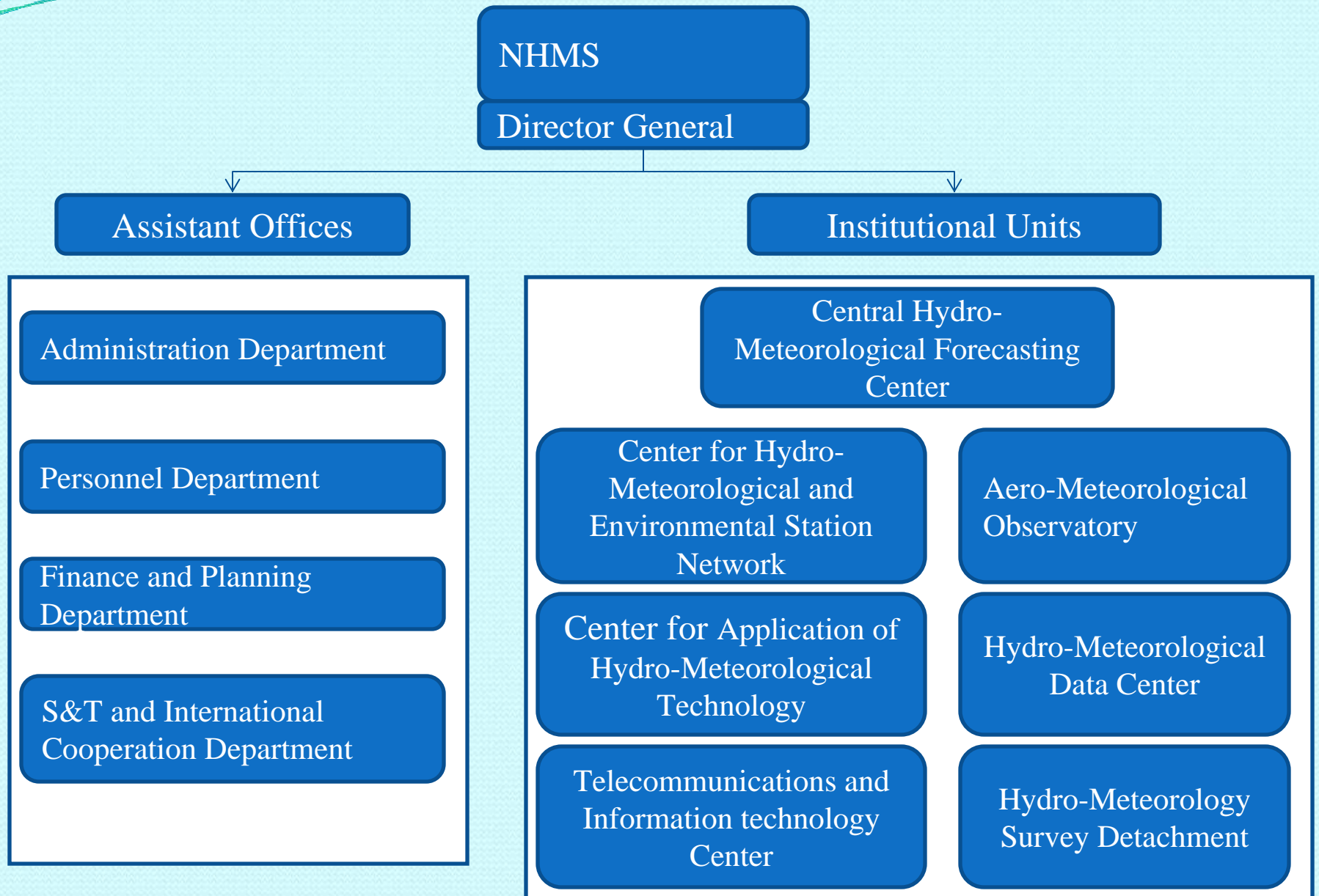
Map of hazard zones in Viet Nam



National Hydro-Meteorology Services of Viet Nam

- In 1976, Hydro- Meteorological Services official established and was directly under the government of Viet Nam.
- In 2002, National Hydro- Meteorological Services of Viet Nam (NHMS) was under Ministry of Natural Resources and Environment (MONRE).

Structure of NHMS of Viet Nam



Main functions

- Issuing short-range, medium-range and long-range hydro-meteorological forecasts.
- Carrying out researches and applications of new technologies on hydro-meteorological forecasting.
- Accomplishing international cooperation projects and programs on hydro-meteorological forecasting, data transmission and other related issues.

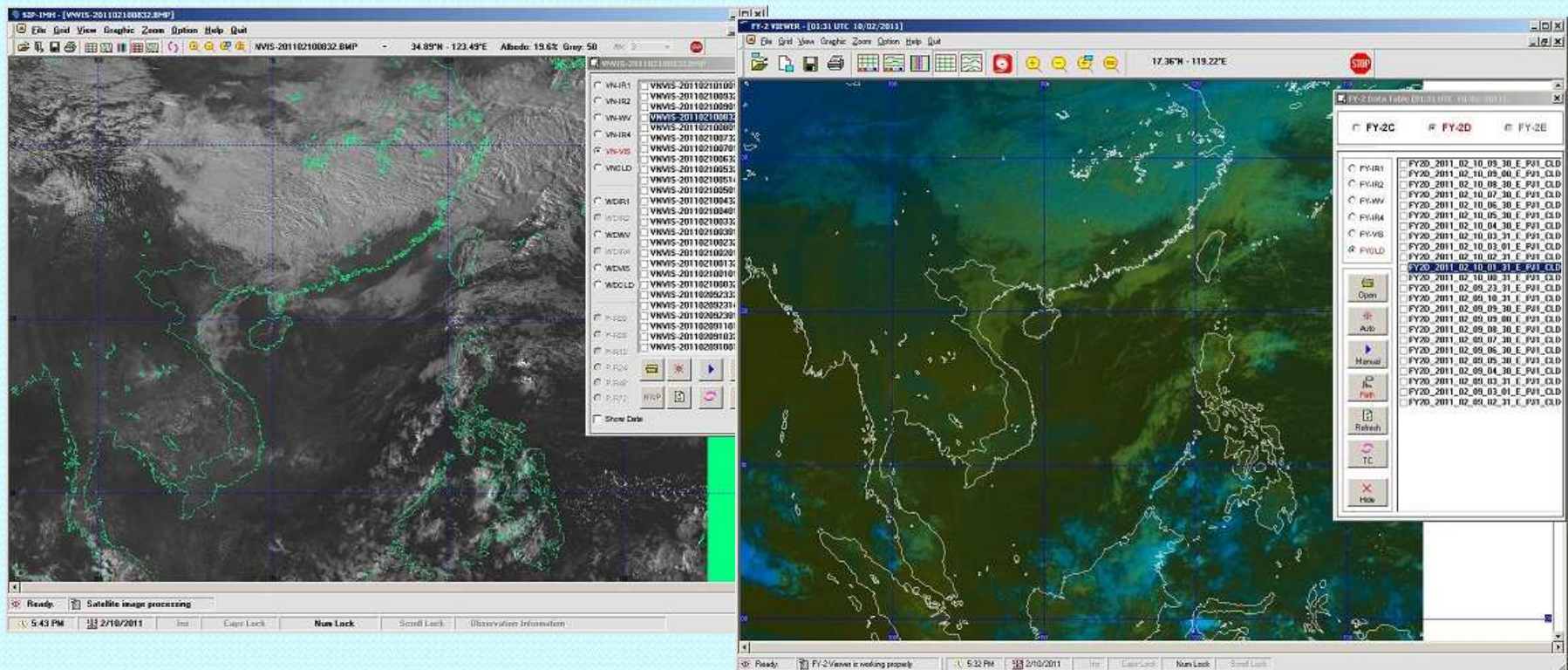
Satellite receiving and processing station

- Receiving data from geostationary satellite MTSAT-1R, FY-2D, FY-2E and polar-orbiting satellite: NOAA series and FY-1D.

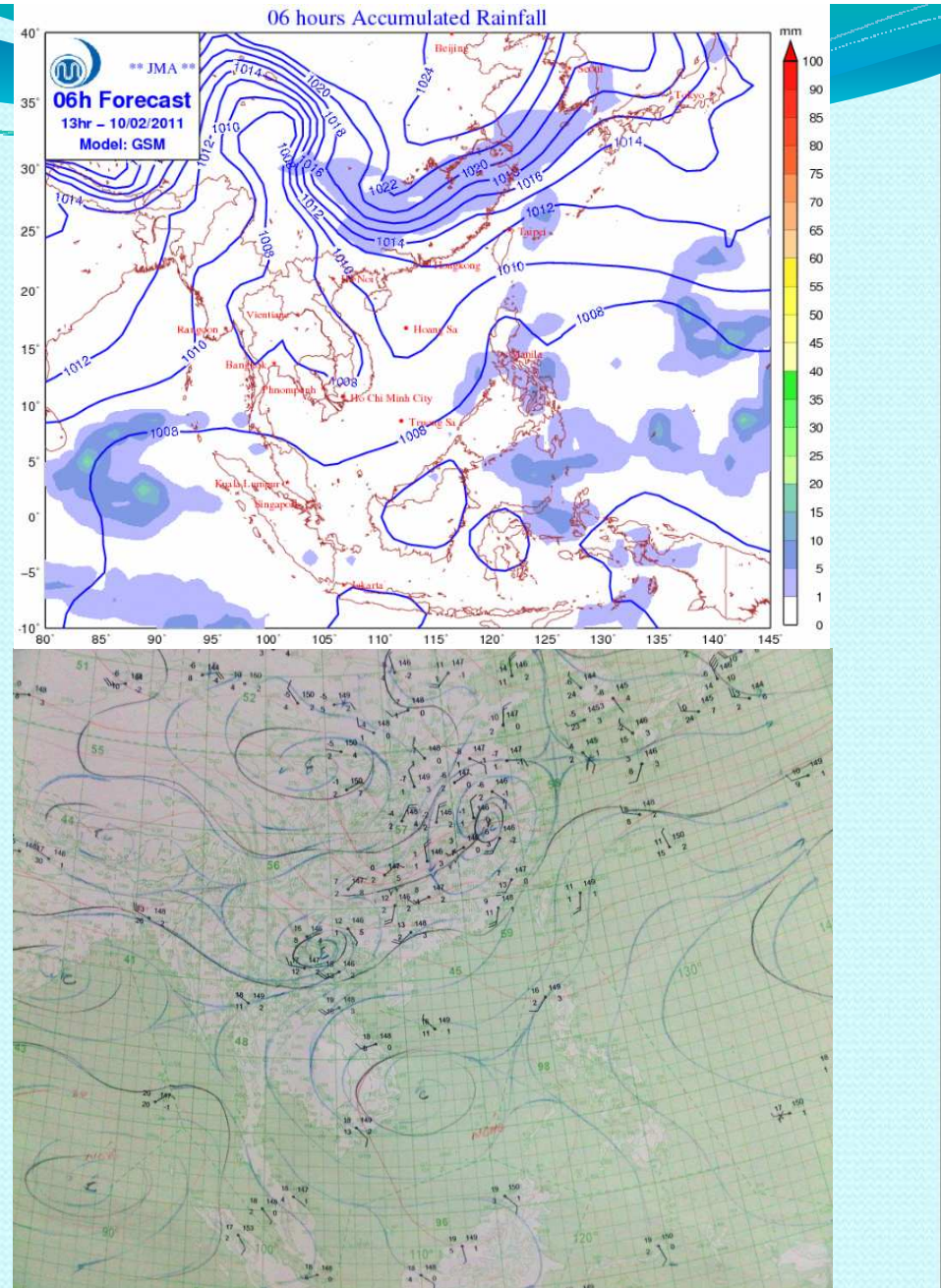
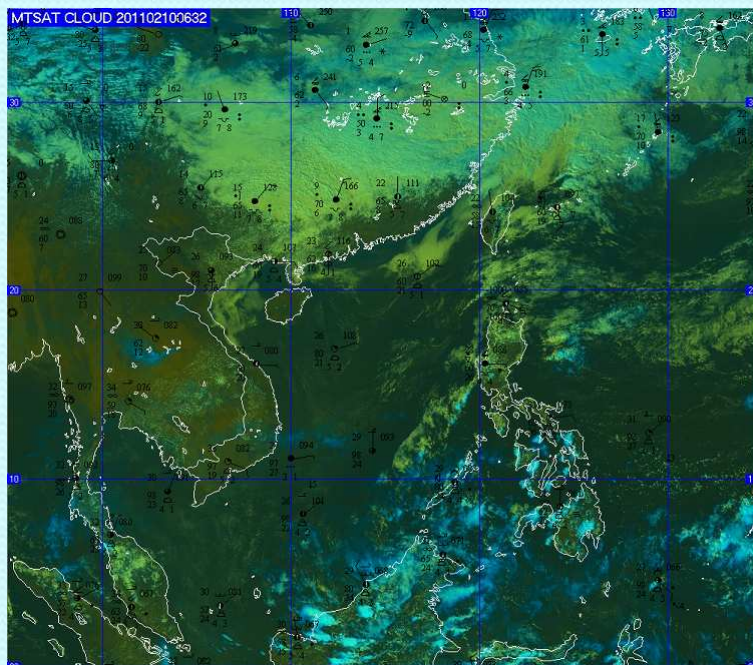


Using Satellite Data in weather forecasting

Satellite Image Processing (developed by NHMS team),
GMSLPD (Japan) and FY-2 Displaying Program (China) to
show satellite images.

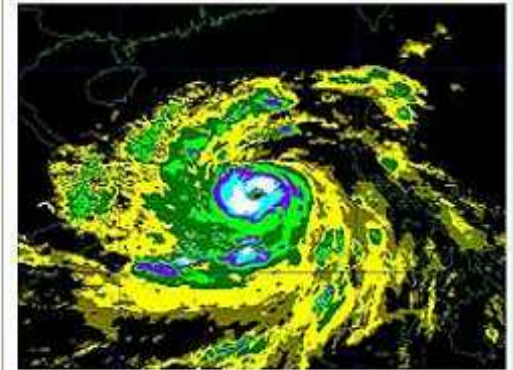
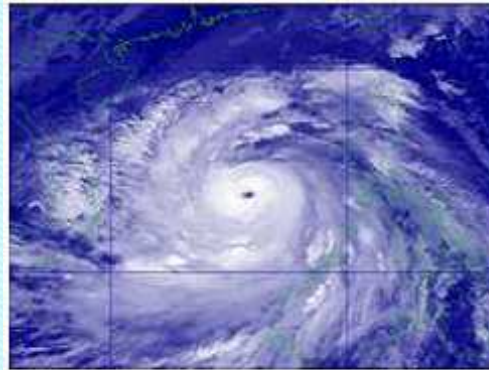


Analyzing data from satellites and weather charts, results from NWP to make daily weather forecast, medium and long range forecast and tropical cyclone warning.

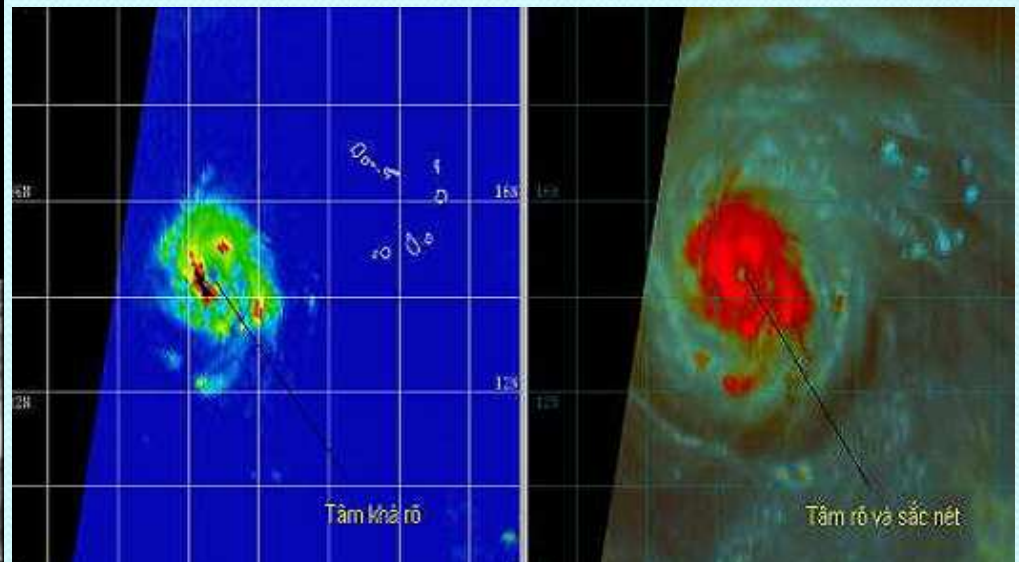
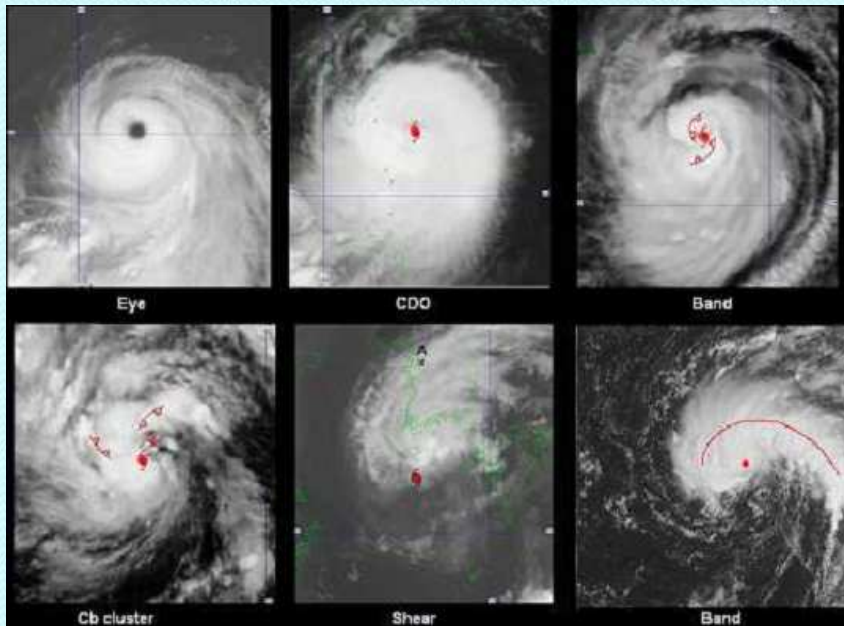


Tropical cyclone analysis

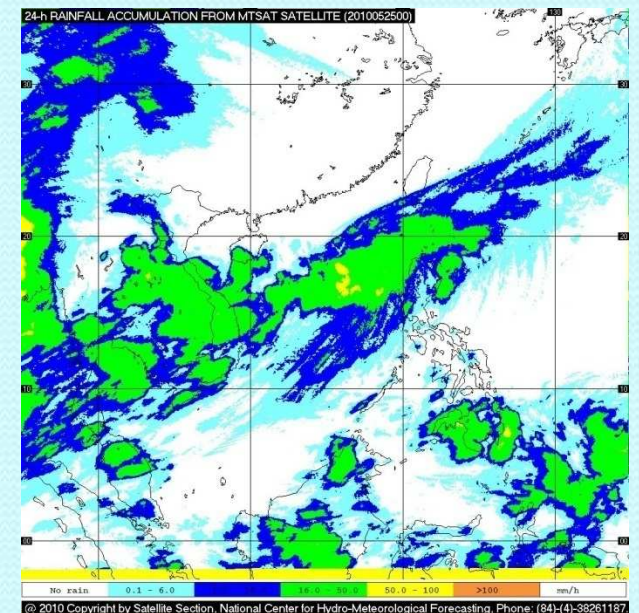
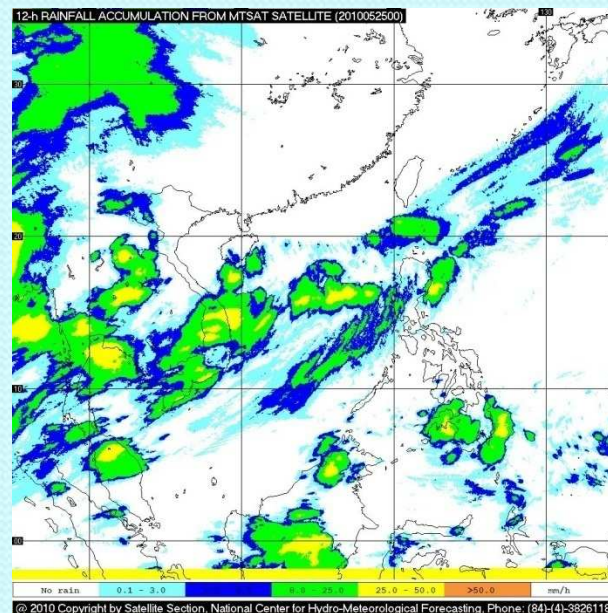
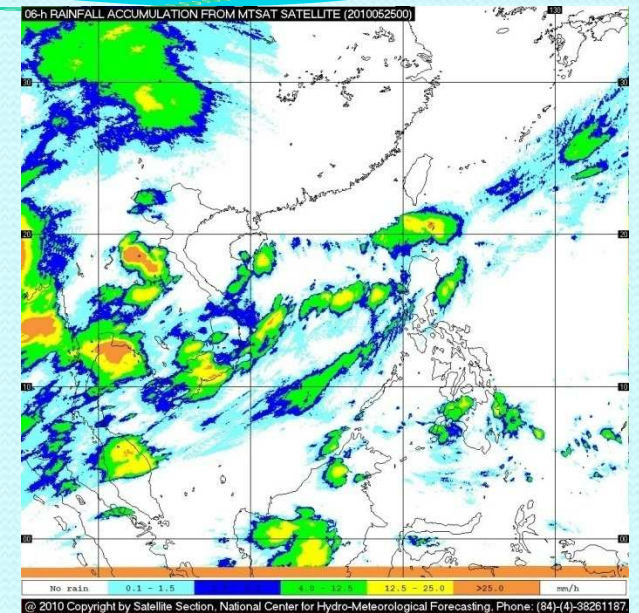
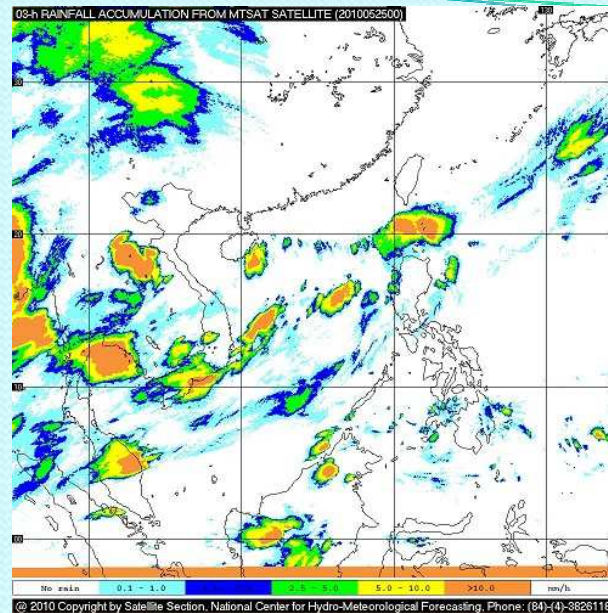
- Dvorak method
- MW image and NWP



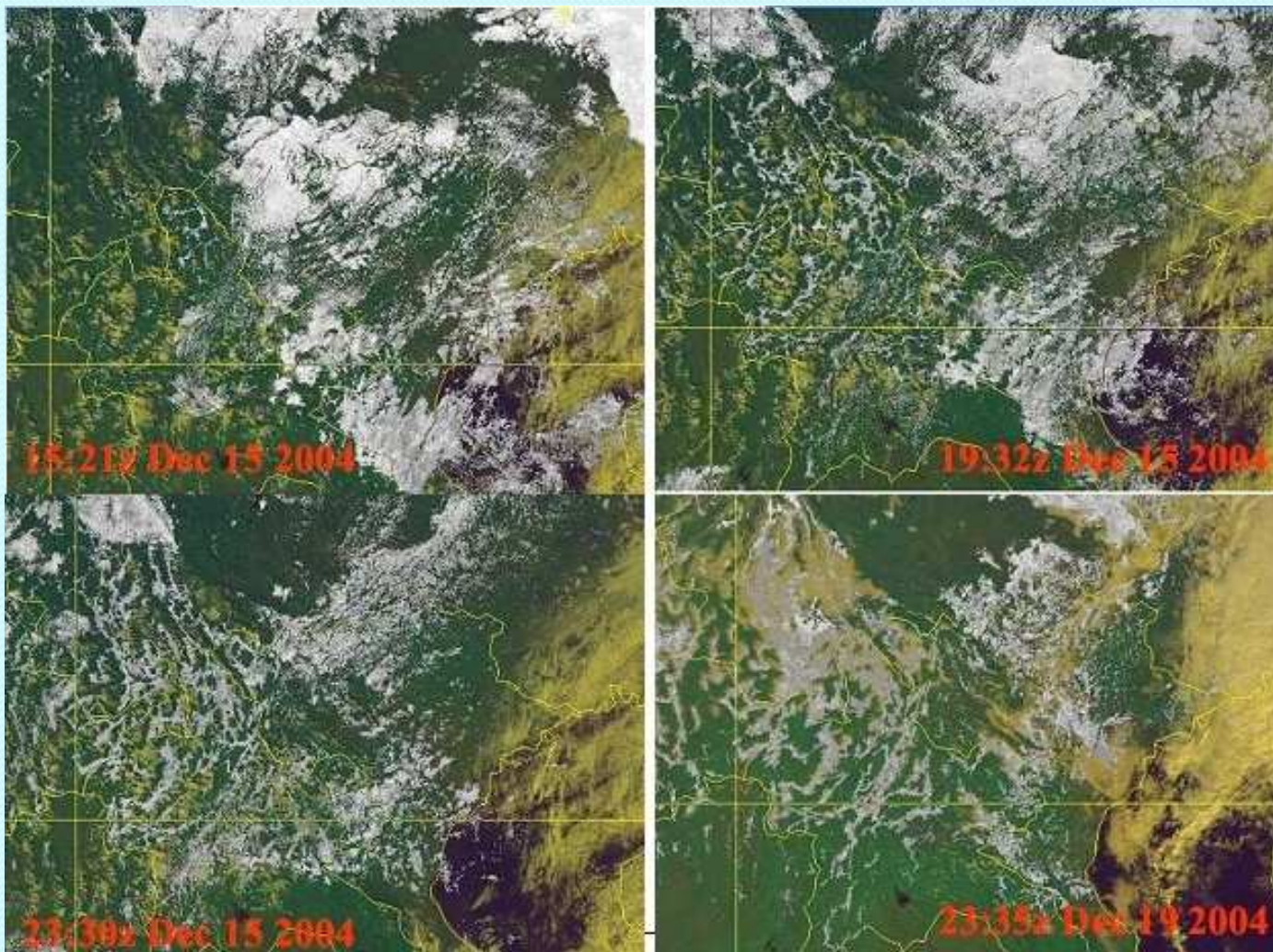
Tropical Cyclone CHANCHU AT 12z May 14th 2006



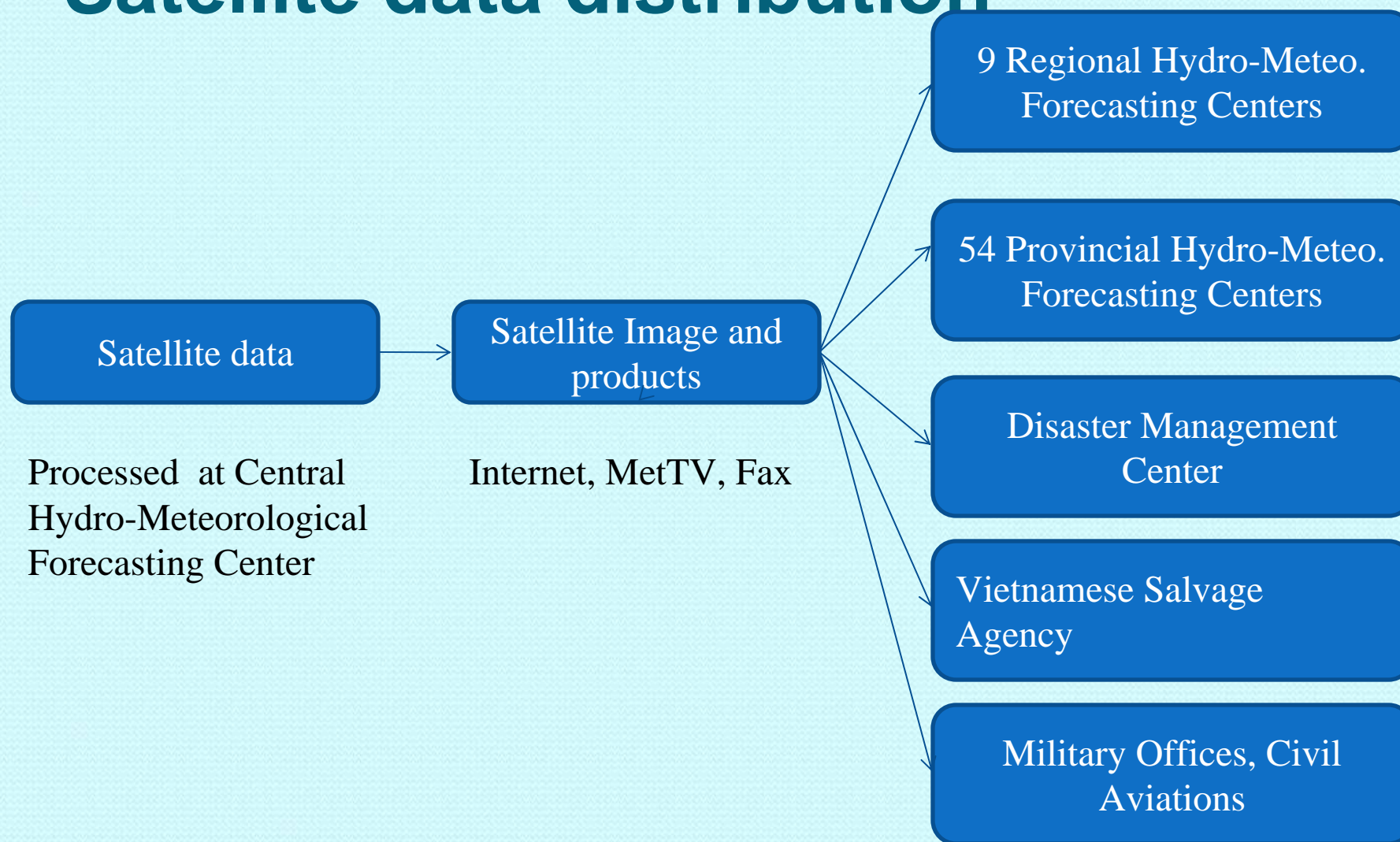
Precipitation Retrieval using ANN algorithms



Fog and cloud detection using window channel and 3.7 μm channel



Satellite data distribution



Strategies and plan for the future

- Developing Atmospheric Motion Vector (AMV), cloud classification from satellite image.
- Improving the quantity and quality of products from satellite data.
- Studying rainfall estimation method based on combining data from satellite and radar.
- Investing in human resource development, establishing training courses on the use of satellite related data in NHMS of Viet Nam.
- Maintaining collaboration with WMO, other NHMSs and international cooperation.

Thank you for your attention!

