The Seventh Virtual Laboratory Management Group Meeting (VLMG-7)
the Russian State Hydrometeorological University (RSHU)
Saint Petersburg, Russian Federation

V-Lab Activities in CMATC

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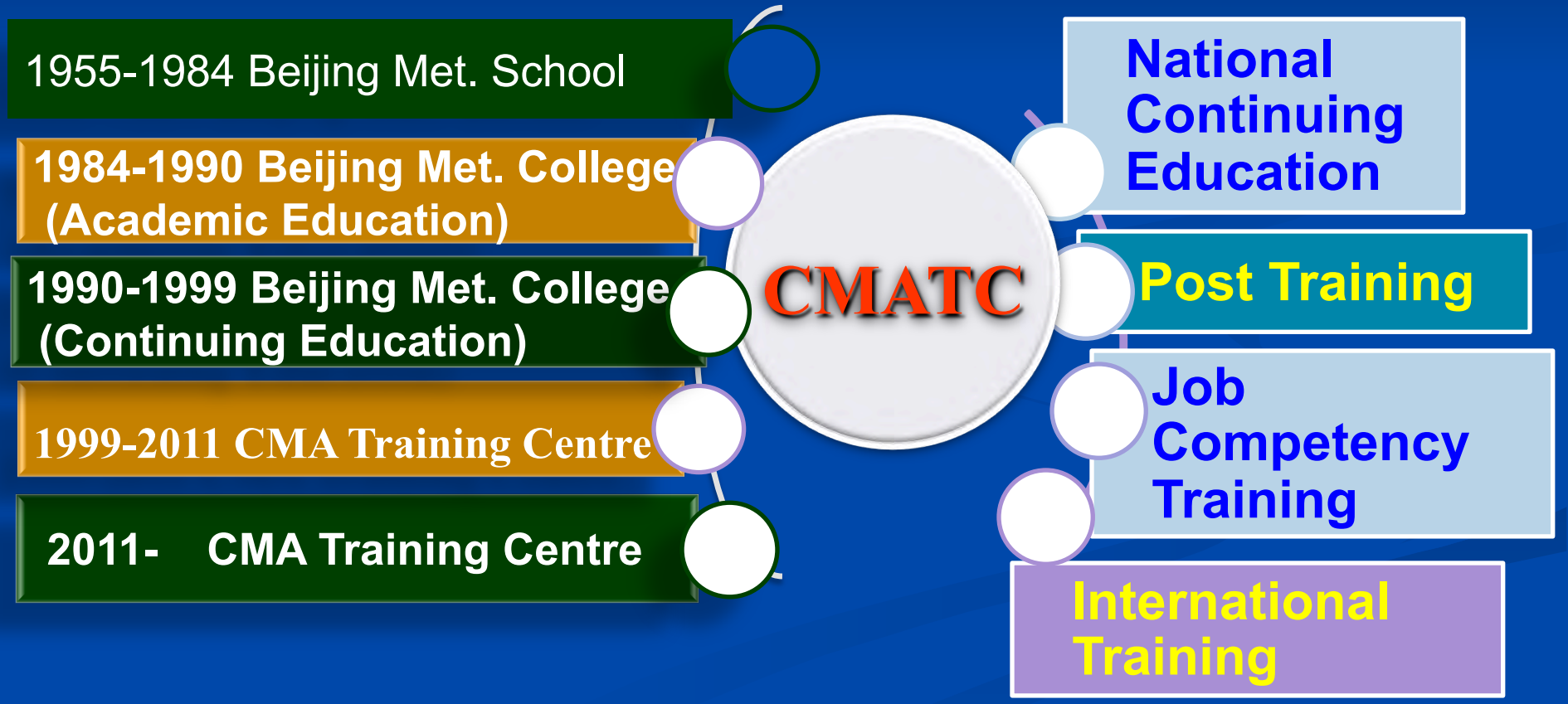
22-25 Jul. 2014

Outline

- Introduction
- Main Works and Achievements
- Outlooks

Introduction

CMATC History and Responsibilities



CMATC
WMO RTC Beijing

- WMO RTC Beijing was established in 2003

CMATC
WMO RTC Beijing
Centre of Excellence of WMO/CGMS V-Lab

- In 2007 CMATC was designated as WMO/CGMS Virtual Laboratory of Center of Excellence（CoE）
- Contributed mainly to training for meteorologists from abroad, especially from developing countries, besides that in native

Excellent Staffs

221 + 500

29% Bachelors

36% Masters

19% Doctors

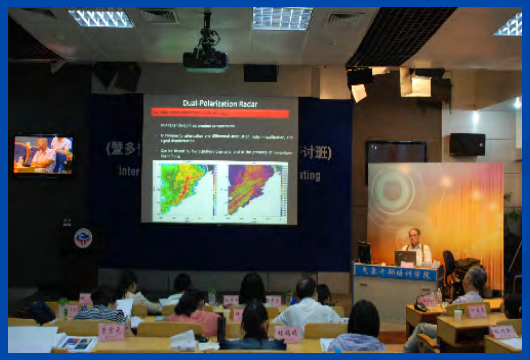
6% Professors

40% Associate Professors

Experts and professors native and abroad

Modern Facilities

(18 classrooms)



Wide Training Areas

Met. Service

- Decision-making Met. service training
- Modern agri-met. service technique training

Weather Forecast

- Nowcasting training
- Rainstorm forecast training

DPM/DRR

- Climate and climate change training
- Climate feasibility technology training

Met. Observation

- Ground observation training
- Atmospheric sounding

Others

- Advanced English training
- M… tion

OTJ academic education

Joint postgraduate program with Lanzhou University

In 2013

- 147 training courses
- 177, 132 person·days
- 532, 996 person·times in distance learning

Outline

- Introduction
- Main Works and Achievements
- Outlooks

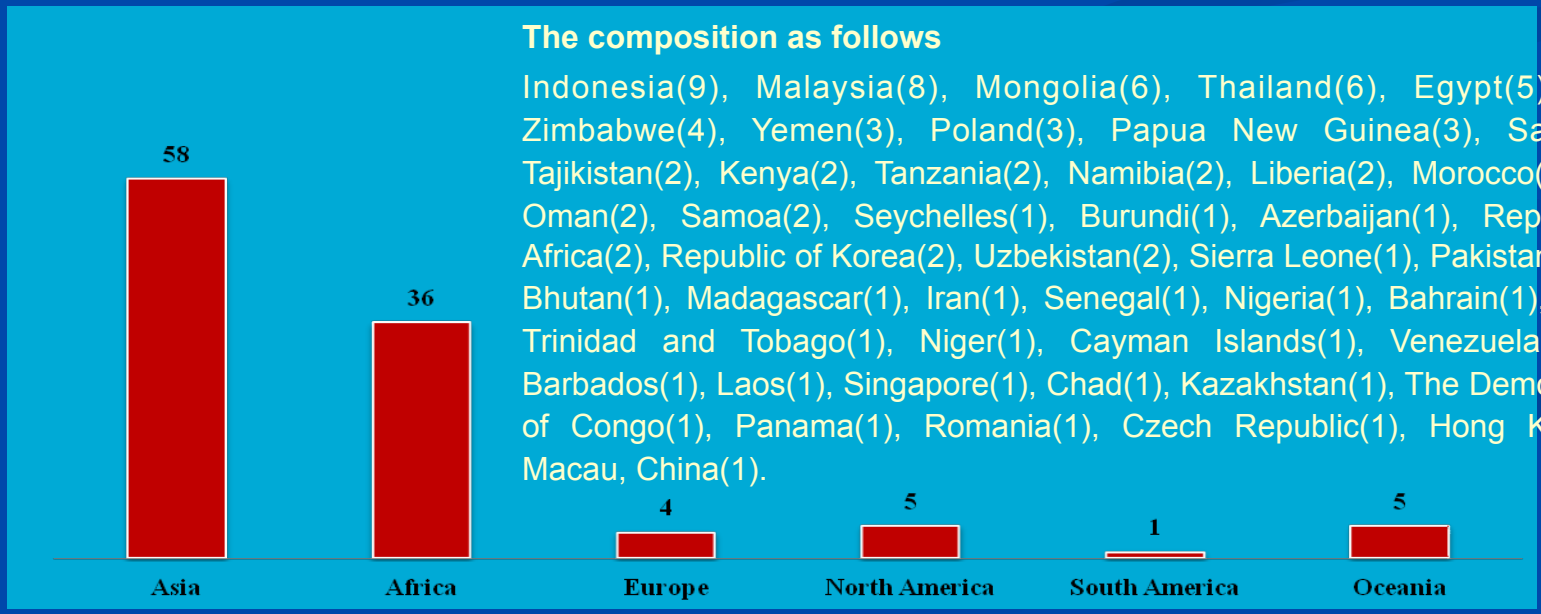
Works and Achievements about V-Lab in China

1. International Training on MST
2. Domestic Training on MST
3. Teaching Materials Construction
4. Online Discussion
5. Newsletter provided to WMO

International Training on SMT

1. In general, CMATC as WMO RTC has carried out many international trainings for nearly 900 participants from more than 100 countries and regions over the past decade.

2. In term of SMT, 109 participants from more than 50 countries and regions



The composition as follows

Indonesia(9), Malaysia(8), Mongolia(6), Thailand(6), Egypt(5), Rwanda(4), Zimbabwe(4), Yemen(3), Poland(3), Papua New Guinea(3), Saudi Arabia(3), Tajikistan(2), Kenya(2), Tanzania(2), Namibia(2), Liberia(2), Morocco(2), Vietnam(2), Oman(2), Samoa(2), Seychelles(1), Burundi(1), Azerbaijan(1), Republic of South Africa(2), Republic of Korea(2), Uzbekistan(2), Sierra Leone(1), Pakistan(1), Zambia(1), Bhutan(1), Madagascar(1), Iran(1), Senegal(1), Nigeria(1), Bahrain(1), Philippines(1), Trinidad and Tobago(1), Niger(1), Cayman Islands(1), Venezuela(1), Mexico(1), Barbados(1), Laos(1), Singapore(1), Chad(1), Kazakhstan(1), The Democratic Republic of Congo(1), Panama(1), Romania(1), Czech Republic(1), Hong Kong, China(3), Macau, China(1).

1 International Training on SMT

Opening ceremony of the 6th course on the application of Met. satellite products（2012）

Opening ceremony of the 7th course on the application of Met. satellite products（2013）

Training Events on SMT (8 kinds)

NO.	Name	Participants	Duration
1	The 7th International Training Course on the Application of Meteorological Satellite Products (VCP)	13	3-13 Sep. 2013
2	Training Seminar on Application of Meteorological Satellite in Disaster Risk Reduction and Environment (VCP)	23	22 Oct. -2 Nov. 2012
3	The 5th International Training Course on the Application of Meteorological Satellite Products (VCP)	18	11-21 Jun. 2012
4	The Specific Training Course on Satellite Meteorology for BMKG's Staff	5	22-28 Sep. 2012
5	The 4th International Training Course on McIDAS-V Software Application in Satellite Meteorology(VCP)	13	7-17 Jun. 2011
6	The 3rd International Training Course on the Application of Meteorological Satellite Products (VCP)	17	22 Jun. -2 Jul. 2010
7	The 2nd International Training Course on the Application of Meteorological Satellite Products (VCP)	7	8-17 Oct. 2008
8	The 1st International Training Course on the	13	28 Aug.-8

COURSE CONTENTS in 2013 (13 aspects)

The Application of Meteorological Satellite Products

NO.	COURSE CONTENTS
1	General introduction to Fengyun meteorological satellites and their application
2	Infrared precipitation estimation and microwave precipitation retrieval
3	Cloud motion wind products and its application
4	Satellite atmospheric composition observation and its application on environment and climate
5	Drought monitoring using met. satellite and lab practice
6	Met. satellite and space weather
7	Wild fire monitoring by using meteorological satellite introduction and lab practice
8	Monitoring on tropical cyclones
9	Lab practice on tropical cyclones, rainstorm and strong convective weather
10	Remote sensing of snow and sea ice, volcanic eruption
11	Retrieval method of cloud parameters by remote sensing data
12	Atmospheric sounding from satellite and its application
13	Introduction to the synoptic scale cloud features

COURSE CONTENTS in 2012(21 aspects)
The Application of Meteorological Satellite in Disaster Mitigation and Environmental Studies

NO.	COURSE CONTENTS
1	General introduction to FY meteorological satellites and their application
2	Progress on Application of Satellite Data in Numerical Weather Prediction
3	Cloud motion wind products
4	Tropical cyclone monitoring
5	Satellite channel setting and its application on disaster mitigation and environment studies
6	Use of FY-3 Satellite Data in Numerical Weather Prediction
7	Infrared Precipitation estimation and microwave precipitation retrieval
8	Urban island monitoring& Wild fire monitoring
9	Atmospheric Sounding from Satellite and Its Application
10	Thermal infrared remote sensing and its application
11	Retrieval Method of Cloud Parameters by Remote Sensing Data

COURSE CONTENTS in 2012 (Continue)
The Application of Meteorological Satellites in Disaster Mitigation and Environmental Studies

NO.	COURSE CONTENTS
12	NSMC Satellite Data Exchange and Sharing
13	Atmospheric aerosol remote sensing from satellite
14	the Application of Meteorological Satellite to Space Weather
15	Water body monitoring& Alga monitoring
16	Drought Monitoring with Meteorological Satellite
17	Study on Satellite Data Characterization of the Tropical Waves: Madden-Julian Oscillation (MJO) and Tropical Instability Waves (TIWs)
18	Remote sensing of volcanic eruption
19	The satellite image characters of heavy rainfall which is related to the upper troposphere anticyclone in south China
20	Snow cover monitoring& Sea ice monitoring
21	The application of atmospheric composition remote sensing in environmental and climate studies

2 Domestic Training on MST

- Meteorological satellite data application is one important module of forecaster training courses
- Aims mainly at the rotation training course of weather forecasters (junior , senior, chief)

Curriculum

No.	Subjects for junior & Senior	Class Hour	Percentage（%）
1	NWP and the application of its products	24	10.0
2	Quasi-geostrophic theory and its application in weather analyses and forecasts	24	10.0
3	Analysis techniques for severe convective weather	48	20.0
4	Application of Met. Satellite Images in Weather Analysis and Forecasts	36	15.0
5	Short-time nowcasting of thunderstorm and severe convective weather	36	15.0
6	Case study and forecast summary	48	20.0
7	Lectures	24	10.0
Total		240	100

No.	Subjects for Chief Forecasters	Class Hour	Percentage
1	Overview of NWP and its application	20	12.5
2	Short-time nowcasting of convective precipitation system	20	12.5
3	Analysis on severe convective weathers	32	20.0
4	Application of Met. Satellite Images in Weather Analysis and Forecasts	16	10.0
5	Case Study of high impact weather processes	48	30.0
6	Lectures	24	15.0
Total		160	100

Training courses about The Application of Meteorological Satellite Data in Weather Forecast

	contents	Hours	Percentage (%)
1	Analysis **the features of weather systems** in mid-latitude	8	16.7
2	Analysis and forecast for **torrential rain**	8	16.7
3	Analysis and forecast for **deep moisture convection**	8	16.7
4	Monitor and forecast for **typhoon**	4	8.3
5	Monitor the **sandstorm**	4	8.3
6	Application of some derived data like **TVOS\ precipitation estimation**	16	33

SMT for Job Skill

New technique and method		
Training Events	**Participants**	Duration
Training Course on the Climate Information interactive display and analysis system (CIPAS) user	professionals	2 weeks
Training Course on Climate change and its response		2 weeks
Seminar for Interactive Processing of Satellite Data		2 weeks
Workshop for Satellite Data Assimilation Theory and Methods		2 weeks
Seminar on Specialized Meteorological Services Technique		2 weeks

3 Online Discussion

- Online discussion between CMATC and BOMTC
- Weather discussion
- Introducing the training courses
- Discussing the cooperation of education and training among the CoEs

Date	Contents
1st April	• Is there any possibility for weather discussion for the South West Pacific region during this cyclone season ?. • Could you please make a special session about using MTSAT rapid scan data for the detection and monitoring of Tropical cyclones in the early development stage (T number T1 - T2)?.
6th May	•Introducing the new style of Regional Focus Group meeting •Review of some forecasts from the last Regional Focus Group meeting of 1st April – Tropical Storm Peipah (Domeng) and Severe •Tropical Cyclone Ita •A brief introduction of the Forecast Simulator – preparing for Himawari 8
3rd June	•Broadscale analysis of current RAV and RAII weather •Real time Weather and Forecast Discussion
1st July	•Latest developments pertaining to Himawari 8/9 relevant to RAV and RAII forecasters •Upcoming online training pertaining to the effective use of Himawari 8/9 data,
29th July to 1st August	*Science Week*

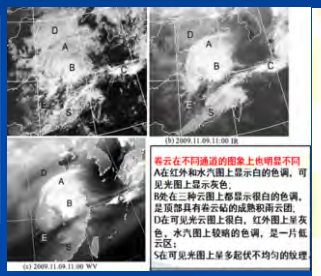
5 Teaching Materials Construction

DVD

- Multimedia tutorial of meteorological satellite image analysis and application

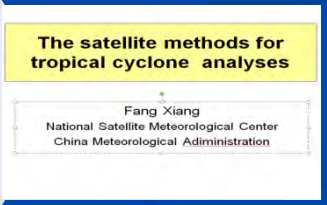
book

- Training materials for meteorological base station (the application of satellite remote sensing)



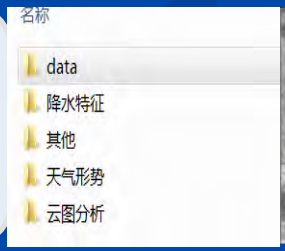
Document

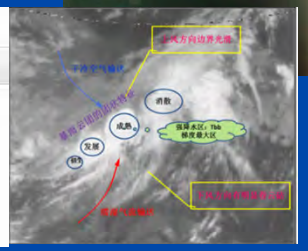
- 57 meteorological satellite documents



database

- 7 weather cases for meteorological satellite image



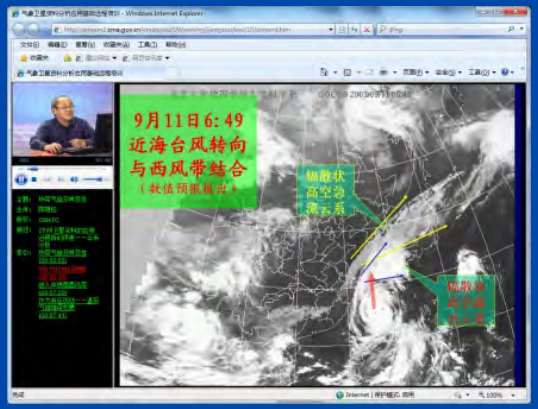


Courseware for Distance Training on MST

2 kinds,up to100hrs, good effect

resource name	types	hours	number of person-times	number of learners	length of learning time
➢ **Application of meteorological satellite images in weather analysis and forecasting (1-8)**	Streaming media	12	29987	11834	24901
➢ Modern Weather Service Lecture Series (**meteorological satellite part**)	Streaming media	10	11611	2227	28269
➢ **Satellite monitoring and warning technology of sand storm**	Streaming media	3	313	143	403
➢ **Comprehensive meteorological satellite data analysis and application training**	Webpage interaction	33	17834	2788	42626
➢ **Advanced analysis and application of meteorological satellite images**	Webpage interaction	20	3658	1047	4104
➢ **Basic of satellite image recognition and analysis**	Webpage interaction	20	1292	1289	1154

Streaming Media



- Integrated rich media resources
- Strong interaction
- Independent learning

Interactive Webpage

5 Providing Information to VLab Newsletter

The International Training course on the Application of Meteorological Satellites in Disaster Mitigation and Environmental Studies from 22 October to 2 November, 2012.

VLab Newsletter

It Happened / 11

Training course in Beijing

Training Course on the Application of Meteorological Satellites in Disaster Mitiga- (CMATC) in Beijing and it was co-sponsored by CMA and CMA Training Centre.

of meteorological satellites, scientific research and management. 23 international participants from 19 countries who are working in the field of satellite meteorology attended the training. 19 experts from National Satellite Meteorological Centre (NSMC) of CMA were invited to give lectures for the training course. The content of the lectures included infrared precipitation estimation and microwave precipitation retrieval; cloud motion wind products; tropical cyclone monitoring; observation operator and aerosols in satellite data assimilation; NSMC satellite data exchange and sharing; retrieval method of cloud parameters by remote sensing data; on the application of meteorological satellite to space weather; thermal infrared remote sensing and its application; use of FY-3 satellite data in Numerical Weather Prediction; satellite channel setting and its application on disaster mitigation and environment studies; drought monitoring with meteorological satellite.

In addition to the classroom lectures and discussions, the participants visited NSMC three in the closing ceremony. They said that they had learnt a lot from the Chinese experts of NSMC. The development of satellite meteorology is of vital significance in the improvement of meteorological prediction accuracy and service provision. The participants were confident that what they learnt here would be quite helpful in their operational and scientific work.

The composition of the 23 participants were from Kenya (1), Thailand (1), Malaysia (2), Bhutan (1), Poland (1), Egypt (1), Madagascar (1), Tajikistan (1), Iran (1), Indonesia (1), Senegal (1), Nigeria (1), Tanzania (1), Bahrain (1), Saudi Arabia (3), Philippines (1), Rwanda (1), Liberia (2), Morocco (1).

Sent by WANG Chunzhu - VLab CoE China - Beijing

The second International Training Course on McIDAS-V Software Application in Satellite Meteorology in June 2012.

WMO OMM

Vol. 3 No. 4, August 2012

RA II Pilot Project Newsletter

DEVELOPING SUPPORT FOR NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES IN SATELLITE DATA, PRODUCTS AND TRAINING

Contents of this issue

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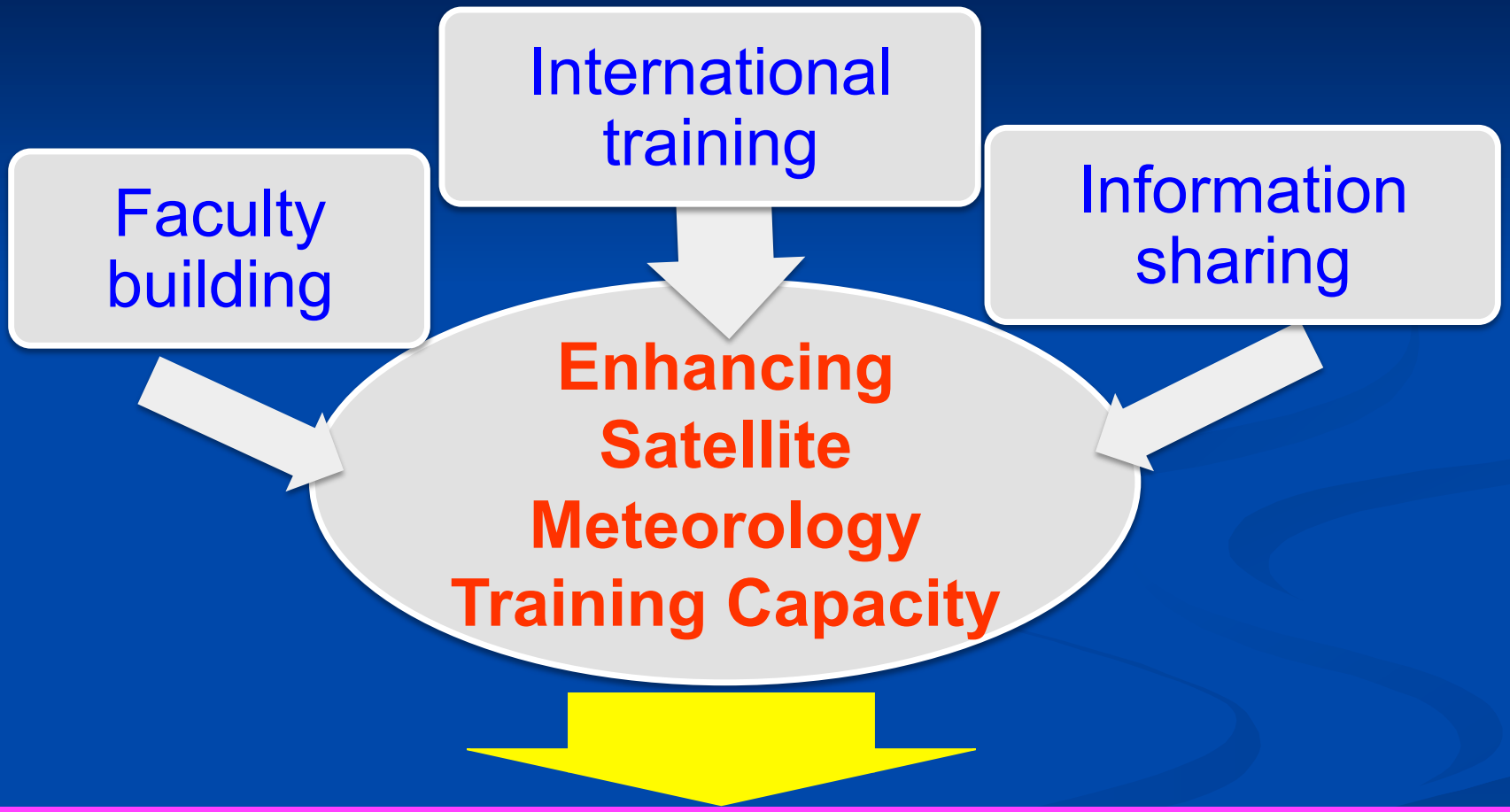
Outlooks

Gearing to the action of CMATC Modernization



Providing qualified staff and decision making support to Met. Service

Future Activities

- Faculty building: Training platform, Teaching team and Curriculum construction
- International training: Carrying out training courses about the application of FY data and developing the international distance training
- Information sharing: Translating teaching material into English
- Cooperation with other CoEs
- RFG discussion: Holding the online discussions

Thanks !

Let us do better ! ♪