



1st Organization Committee meeting of

Experiment on Typhoon Intensity Chang in Coastal Area (EXOTICA)

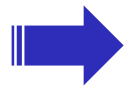
Shanghai Meteorology Service of CMA

2015.10.09 Shanghai, China



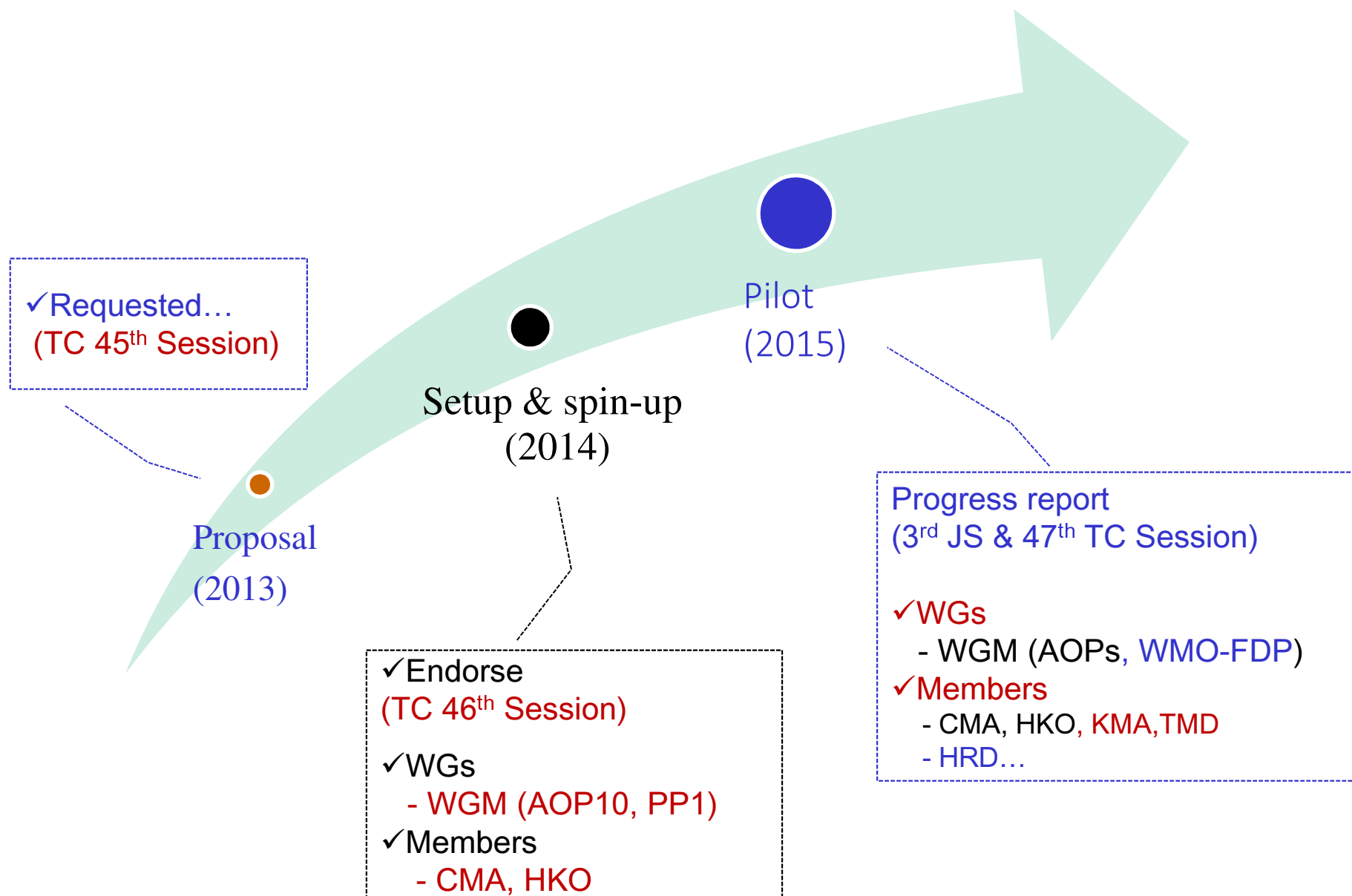
UNESCAP/WMO
Typhoon Committee

Outline



1. Background (footprint)
2. Overview the TOR of OC
3. Introduction of the TOR (draft)
 - Scientific Steering Committee
 - Research Groups
4. Introduction of the Agreement (draft)
5. Future Plans

Footprints of EXOTICA :





Proposal (2013.1) 45th TC Session



45th Session of ESCAP/WMO

2012 Annual Report



Recommendation & suggestion (3)

Chairman: LEI XiaoTu (STI)

Vice-chairman: Mr. Nathani

Ms. Che Ga

Mete. Expert of TCS: Kai H

30, January 2013, Ho

➤ To prepare a joint field experiment within TC region

- similar to SPECTRUM90
- using flights, radar, wind profile, satellite and GPS sounding....
- coordinate with the demonstration projects (e.g. WMO/WWRP/TMRP)



UNESCAP/WMO
Typhoon Committee

45th Session Final Report of TC



➤ Paragraph 45.t:

“ *WGM* In conjunction with other WGs and TRCG, to take the lead in *designing and formulating a tropical cyclone field experiment* within the region, in particular by making use of the available opportunity *in collaborating with the Southern China Monsoon Rainfall Experiment (SCMREX)* planned by the WGTMR of WMO for implementation in 2013 (spin-up phase) and 2014 (field phase), and *hold a small expert meeting to draft the proposal if necessary.*”

Drafting Process

➤ 1st Version

- ❑ Draft: March 2013, on behalf of WGM, STI/CMA drafted the 1st version of the plan.
- ❑ Symposium: March 2013, Chaired by Ms. JIAO Meiyan, a coordinated meeting was held in CMA, attended by Dr. LEI Xiaotu (Chairperson of WGM), Prof. LUO Yali (Chief Scientist of SCMREX), Prof. DUAN Yihong (Chair of WMO/WGTMR).
- ❑ Circulate: the 1st draft was circulated among TRCG.

Drafting Process (con.)

➤ 2nd Version

- Revise: April 2013
- Present: May 2013, **AWG** small meeting-Bangkok (Jun YU)
May 2013, 8th **WGDRR** workshop-Seoul (Derek Leong)
October 2013, 2nd **WGH** workshop-Seoul (Jin ping LIU)

➤ 3rd Version

- Revise: November 2013
- Present: December 2013, 8th IWS and 2nd TRCG Forum

➤ 4th Version

- Revise: January – February, 2014
- Submit: February 2014, 46th Session



UNESCAP/WMO
Typhoon Committee

Endorse (2014.2) 46th TC Session



46th Session of ESCAP/WMO TC:

Experiment on Typhoon Intensity Chang in Coastal Area (EXOTICA)

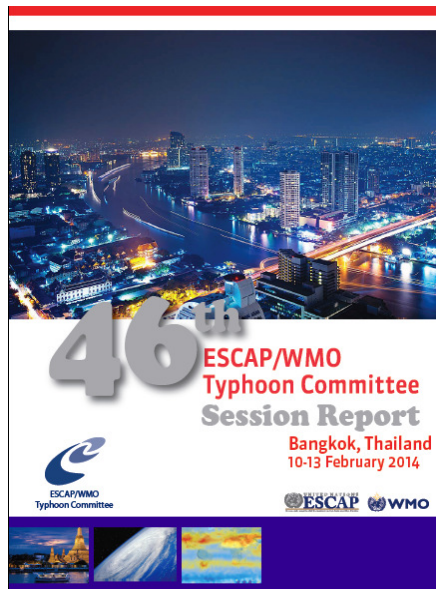
WGM of ESCAP/WMO TC

2014.02.10 Bangkok, Thailand



2. Introduction on EXOTICA

- ① Scientific issues
- ② Goals and objectives
- ③ Field Campaigns
- ④ Demonstrating research
- ⑤ Strategy and management
- ⑥ Timeline



- a. To endorse the WGM project proposal of EXOTICA as shown in Appendix X (Appendix II – EXOTICA), to encourage the active participation of the Members and WGs, and watch for opportunities to collaborate with other field experiments in the area.
- s. Request TCS to send letters to Members requesting the nomination of the Organizing Committee (OC) for Experiment on Typhoon Intensity Change in Coastal Area (EXOTICA).

1.4. Experiment on Typhoon Intensity Change in Coastal Area (EXOTICA)

117. The Committee noted with appreciation the submission of the project EXOTICA to the 46th Session by WGM in accordance with the decision on the WGM recommendation at the 45th Session.
118. The Committee noted the organization structure of EXOTICA and recognized that the OC should be at the top of the organization structure.
119. The Committee noted the implementation plan as well and recognized that the OC should be established as soon as possible to start up the implementation of the project.
120. The Committee noted that The Scientific Steering Committee (SSC) will be established to provide guidance on the design and implementation of this field experiment. SSC will comprise the renowned typhoon experts. All the members of the SSC will be nominated by the OC.
121. The Committee further noted the following:
 - the OC will develop the detailed implementation structure and procedures.
 - to complete the nomination of members of SSC, Chief Scientists, and members of Research Group as soon as possible after the establishment of the OC.
 - Piloting (spin-up) the field campaign (including the trial target observations for 1-2 tropical cyclones) and testing of instruments, demonstration research in 2014.

Adjustment (2015.2) 3rd JS & 47th TC Session

3rd Joint Session of PTC and TC



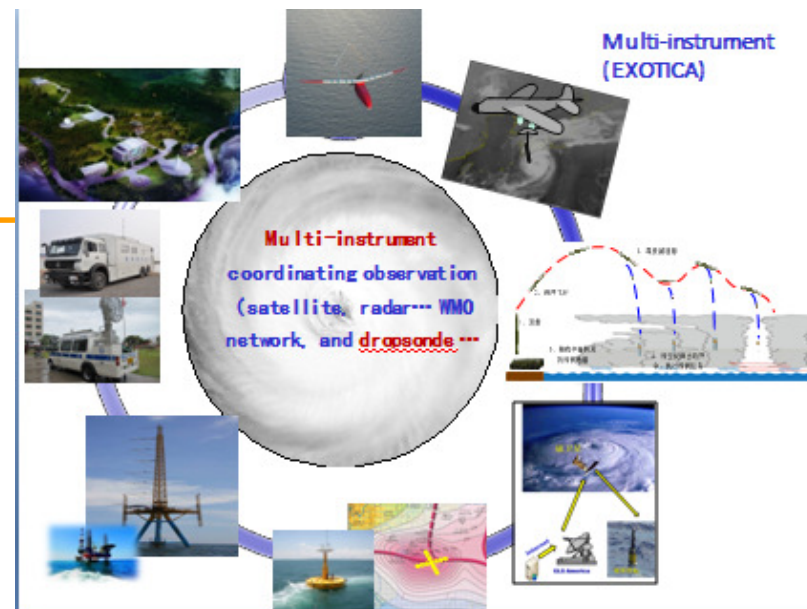
Progress
UNESCO/WMO Typhoon Committee project:

Experiment on Typhoon Intensity Change in Coastal Area (EXOTICA)

Lei Xiao-tu

WGM of TC
Shanghai Typhoon Institute of CMA

2015.2.10 Bangkok, Thailand



Organization Structure

On the small meeting

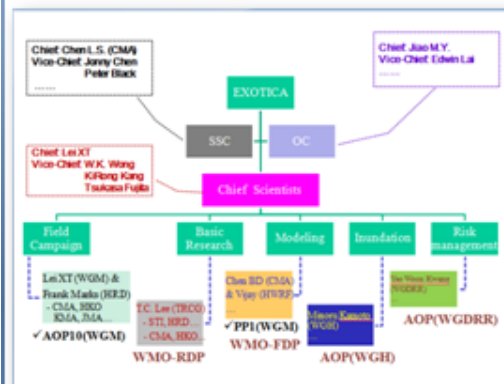
Planned (2014):

- To hold a two-day OC meeting in Shanghai on June 30,
- To establish the OC (Organizing Committee) of EXOTICA

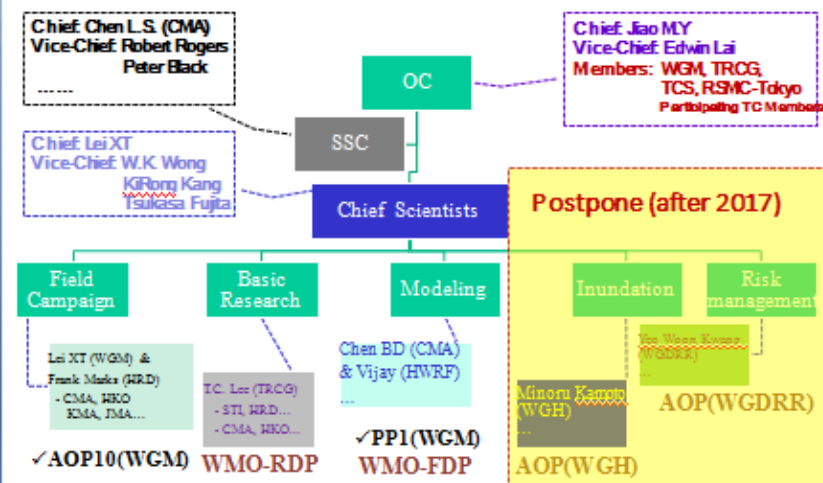
Implementation:

- OC meeting conjunction with AWG meeting
- Almost AWG members have not available time (during TCs season) to attend the meeting

Postpone (2015)



Adjustments: organization structure



47th TC Session final report (Paragraph 13-14:)

- p. To request CMA to host the EXOTICA organization committee (OC) meeting for preparing the implementation of the field campaign and demonstration research, including establishing the Scientific Steering Committee and Research Groups and confirm the tasks of participating Members. To request CMA, HKO and the participating Members to pilot the field campaign by using dropsonde as well as the reconnaissance flight.
- q. To request STI/CMA to continue the research through the coordination with WMO-TLFDP, comparison of (semi-) operational model and to further improve the High Resolution Tropical Cyclone Model based on GRAPES (G-TCM) coordinating with EXOTICA.
- v. The total budget proposed by WGM, which was also concurred at the AWG meeting after the 9th IWS, for undertaking the actions plans (AOPs, POPs and PPs) in 2015 is **USD16000**. In addition, the budget of **USD11000** will be allocated for the support of WGM attendance at the next Integrated Workshop. Thus the total budget for WGM for year 2015 is **USD27000**. The financial support of **USD5000** for AOP-EXOTICA will be allocated through the "Special funding request".



Joint Session of Panel on Tropical Cyclones & Typhoon Committee

UNCC, Bangkok • Thailand
09-11 February 2015

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6.2 EXOTICA

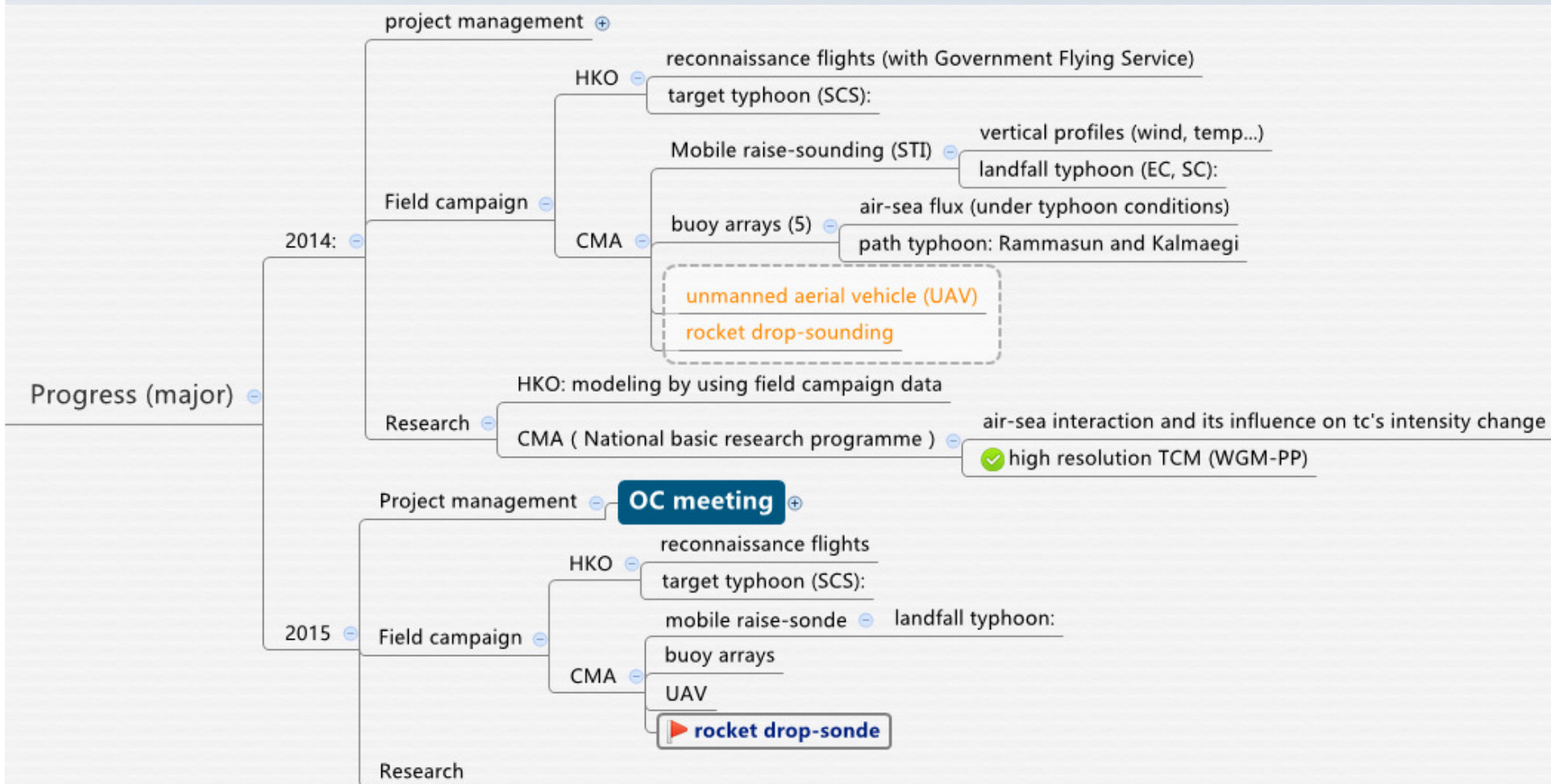
74. The Joint Session took note of the major progress and issues in implementing the project in 2014 as reported in **Appendix XV**.

3JS FINAL REPORT - 14

75. The Joint Session encourage TC and PTC Members to participate the field campaign and the share the observational data related to the target typhoon.
76. The project proponents issued an invitation to Members of TC and PTC to join the project and should they be interested to inform the TCS and PTC secretariat of their interest either in an e-mail or formal letter before May 2015.

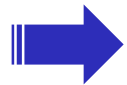
6.3 WMO-TLFDP

77. The Joint Session noted progress and suggestions of WMO Typhoon Landfall Forecast Demonstration Project (WMO-TLFDP) as reported in **Appendix XVI**.
78. The Joint Session supported the proposal of TLFDP to look for ways to collaborate with "The Experiment on Typhoon Intensity Change in Coastal Area (EXOTICA)" and extend WMO-TLFDP until 2018.



Outline

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2. Overview the TOR of OC

3. Introduction of the TOR (draft)

- Scientific Steering Committee
- Research Groups










4. Introduction of the Agreement (draft)

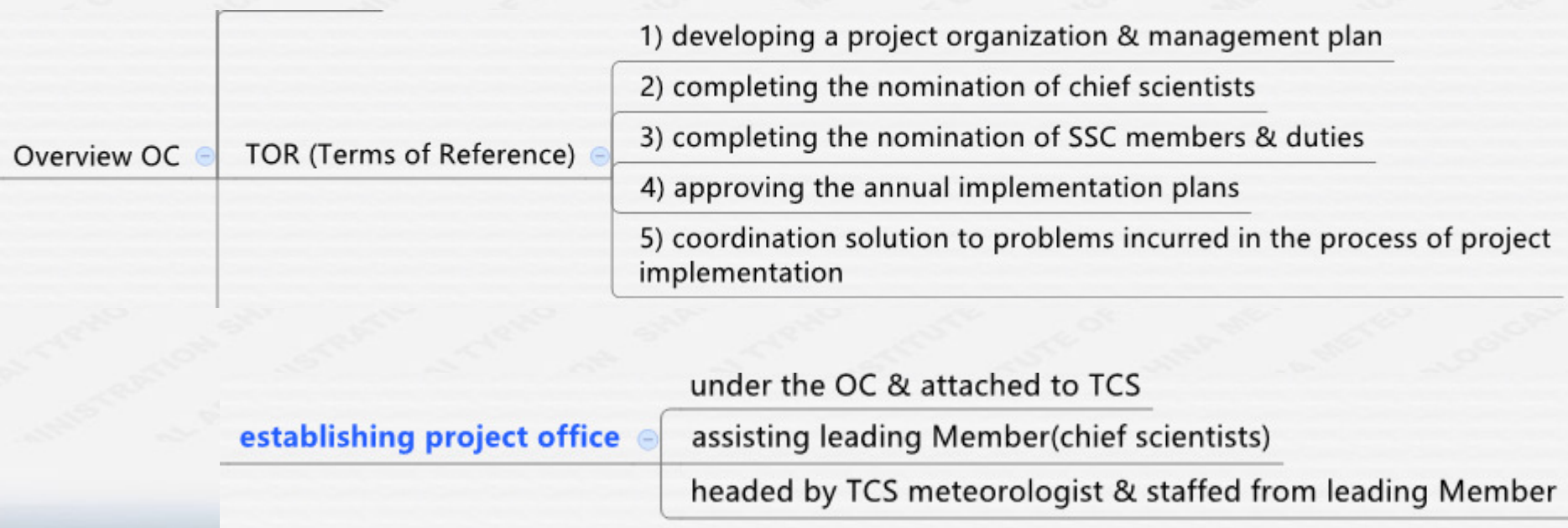
5. Future Plans

OC (**A**WG + **P**articipating Member)



16 (**11/A** + **5/P**)

Overview OC 	 Chair: Ms. JIAO Meiyang (CMA) P	
	 Vice-chair: Mr. Edwin Lai (chair of AWG) A	
	Mr. Raymond TANABE (vice-chair of AWG) A	
	 Mr. FUJITA Tsukasa (vice-chair of AWG) A	
	 Mr. CHEN Zhenlin (CMA) P	
	 Mr. Wong Wai Kin (HKO) P	
	<div>Mr. SHIN Doshick (director of NTC/KMA) P</div>	
	<div>Ms. Patchara Petvirojchai (TMD) P</div>	
	Members: 	 Mr. LEI Xiaotu (chair of WGM) A
		Mr. LEE Tze-cheung (chair of TRCG) A
		<div>Mr. TOKUNAGA Yoshio (chair of WGH) A</div>
		<div>Dr. SHIM Jaehyun (chair of WGDRR) A</div>
		Dr. PENG Taoyong (WMO/TCP) A
		Mr. Alf Ivar BLIKBERG (ESCAP) A
		Mr. YU Jixin (TCS) A
		 Mr. Clarence Fong (TCS) A



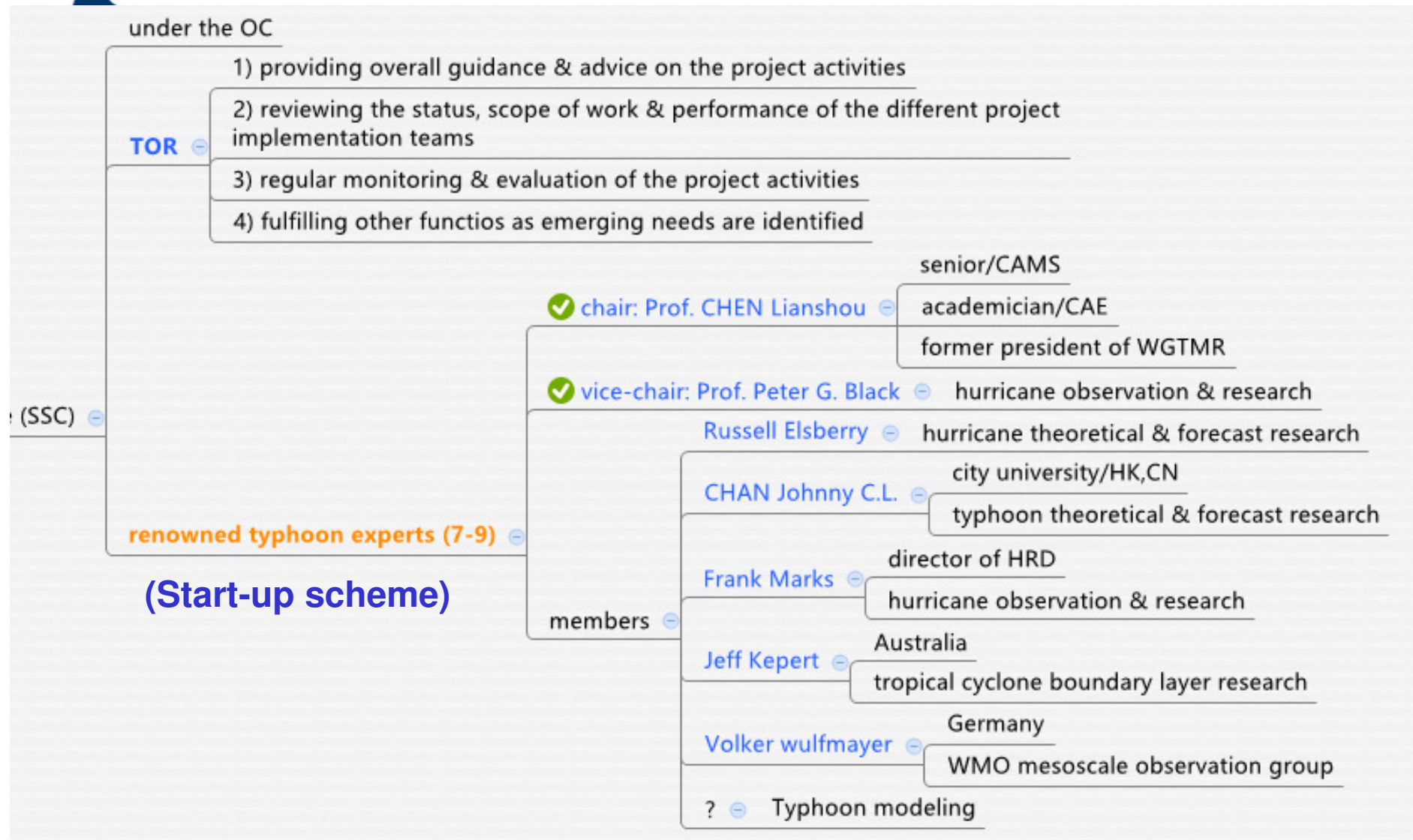


UNESCAP/WMO
Typhoon Committee

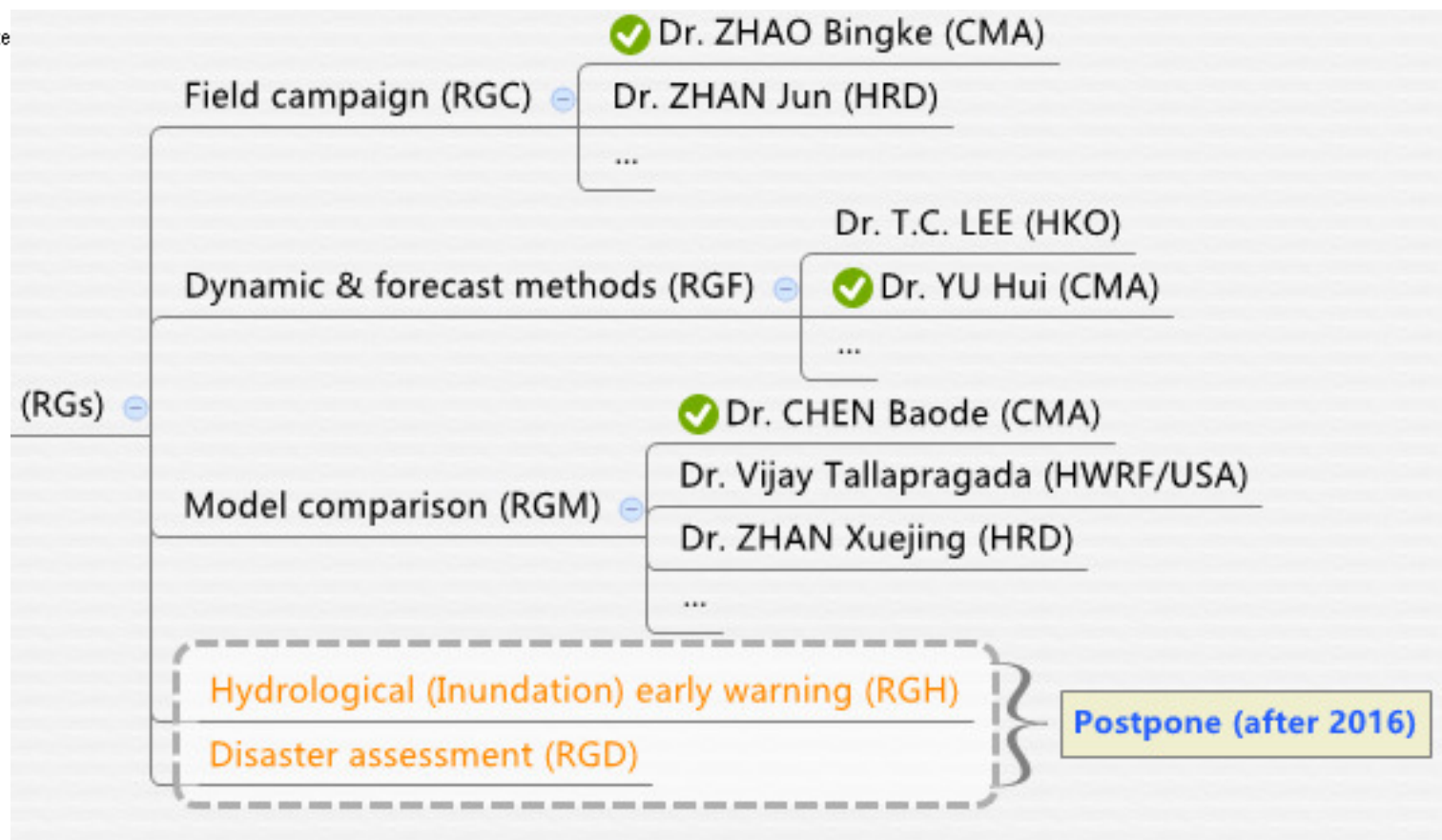
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Scientific Steering Committee (SSC)

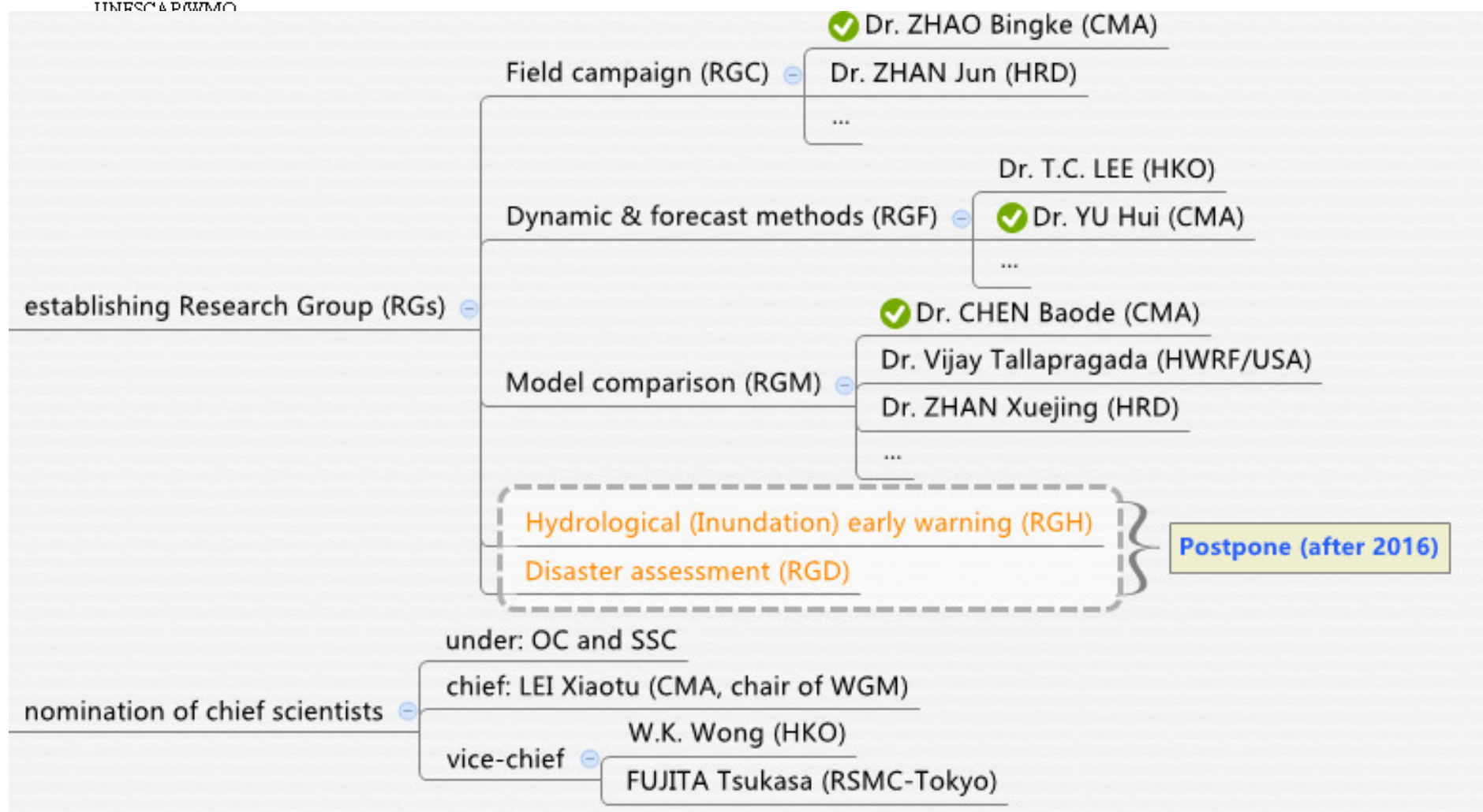


Research Groups (RGs)

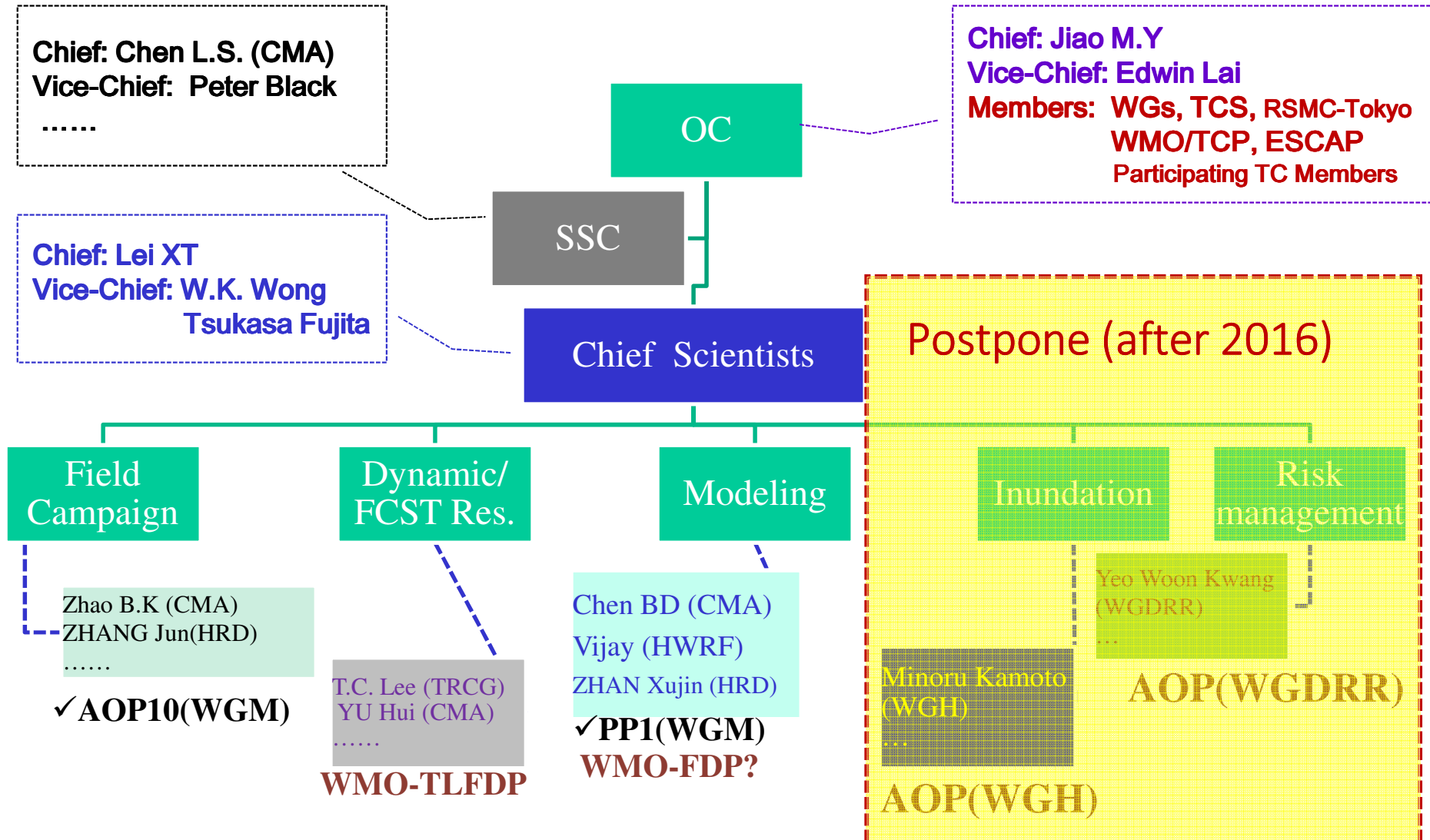




Research Groups (RGs) & Chief/vice-chief scientists



organization structure of EXOTICA





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Typhoon Committee

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Agreement (Draft...)

➤ Notice:

- ✓ Participating Members reached
- ✓ 9 Article
- ✓ Article 1 & 9: general
- ✓ Article 2- 3 : OC
- ✓ Article 4: Project office
- ✓ Article 5 -6: TC Member → participating Member
- ✓ Article 7: SSC
- ✓ Article 8: RGs (RGC, RGF, RGM, **RGH, RGD**)

Agreement (Draft...)

- ① This project is to be implemented in accordance with relevant regulations of the Typhoon Committee and decisions of the Committee during the sessions.
- ② The Project International Organizing Committee (hereinafter referred to as the OC) is the top governing body of this project that is responsible for organizing, coordinating and directing the implementation of the project. OC members meet at least once every year in principle to discuss and endorse the EXOTICA annual work plan and to consider related matters.

Agreement (Draft...)

- ③ The OC shall comprise representatives of Members participating in the project EXOTICA and Chiefs of the Working Groups of the Typhoon Committee. It is to be chaired by the representative nominated by the coordinating participating Member. In case of an OC member unable to perform his duty due to work changes, the nominating Member shall designate a successor.
- ④ A project office shall be set up under the OC and attached to the Typhoon Committee Secretariat (TCS), to be responsible for daily operation of the project with the following functions: assisting the OC in performing supervision duties, drafting and distributing project-related documents, providing services as are required by the OC members and scientists participating in project EXOTICA, building and maintaining the EXOTICA website, etc.

Agreement (Draft...)

- ⑤ TC Members may apply to join the project EXOTICA on voluntary basis, with a written request to be submitted to the OC by the end of February before the implementation of the annual plan of the year, delivered together with its participation program by mail to the Project Office for approval and incorporation into the EXOTICA Annual Plan by the OC.
- ⑥ Members may apply to withdraw from the project EXOTICA, with a written notice to be submitted to the OC not later than December 31 before the implementation of the annual plan of the next year, delivered together with the reasons for its withdrawal by mail to the Project Office for approval by the OC.

Agreement (Draft...)

- ⑦ The Scientific Steering Committee (SSC) is responsible for providing guidance on the implementation of the project. The SSC shall comprise renowned typhoon experts to be nominated by the OC.
- ⑧ Chief Scientists appointed by the OC are responsible for coordinating the work of the five research groups (RGs), namely, Field Observation Research Group, Research Group on Mechanism, Model Comparison Group, Hydrological (Inundation) Early Warning Group and Disaster Assessment Group.
- ⑨ The OC is responsible for the revision of this agreement.

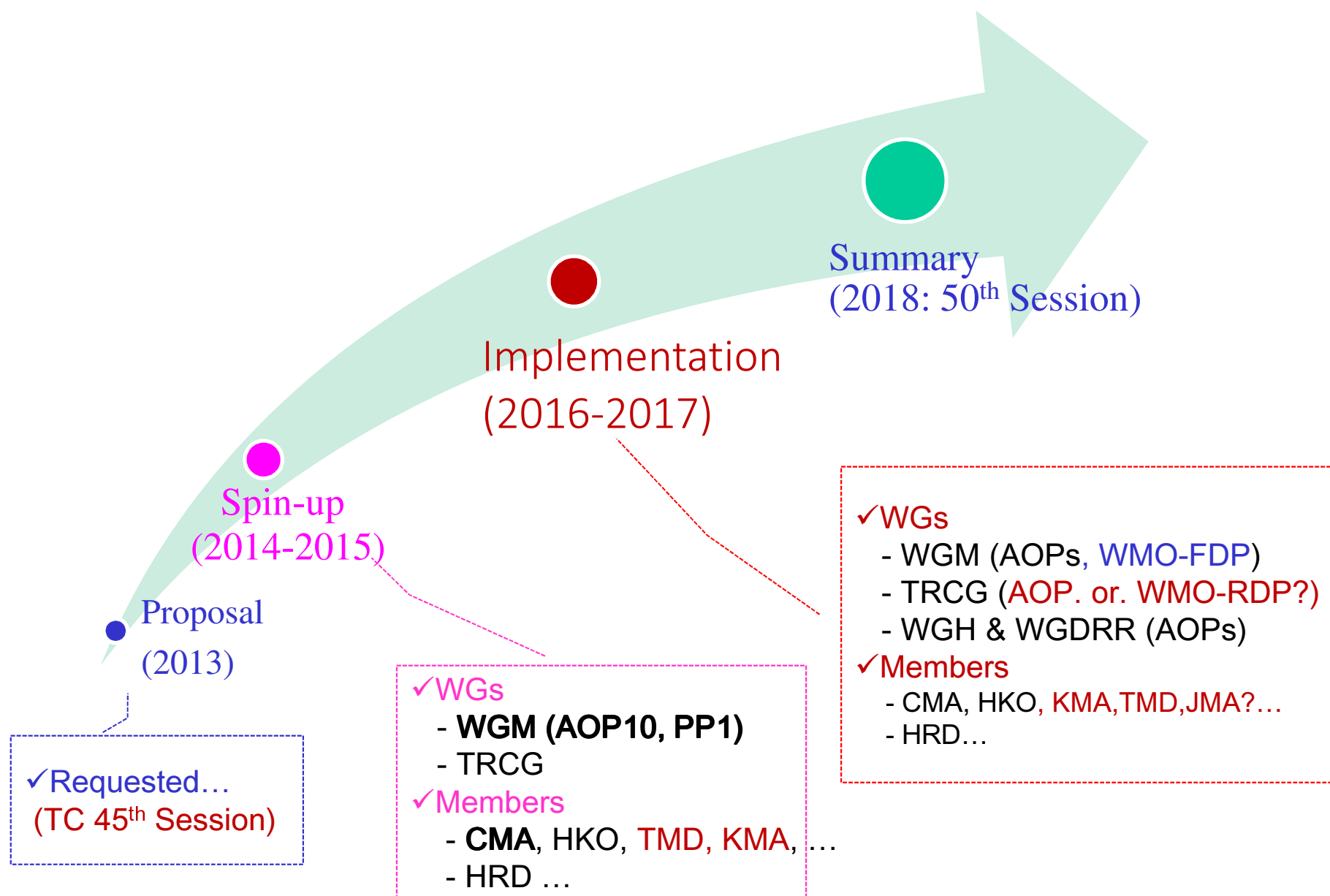
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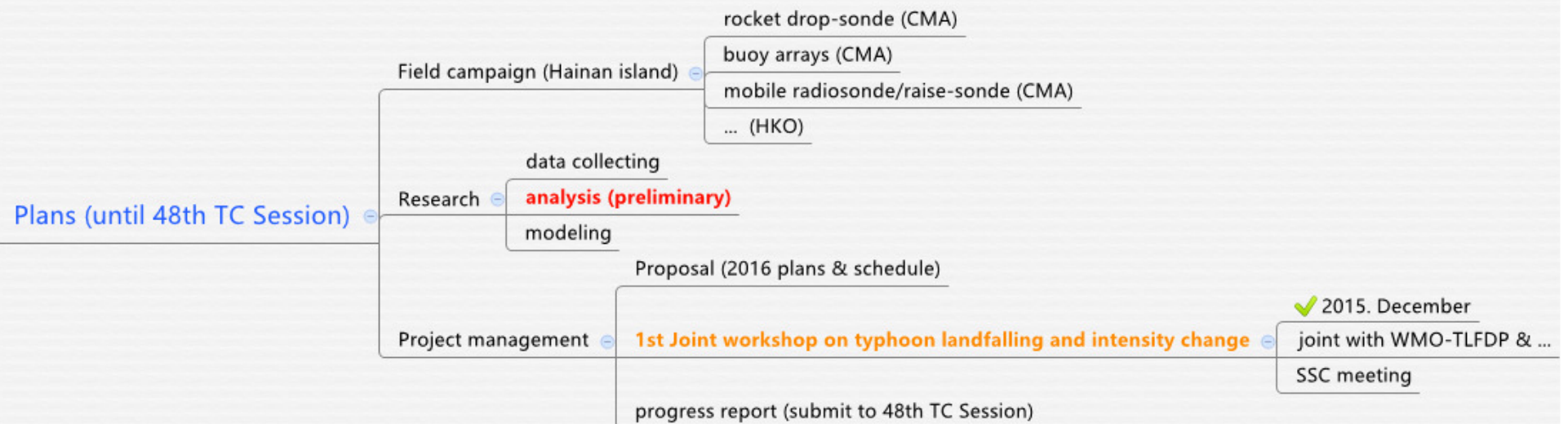
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Implementation Schedule of EXOTICA :



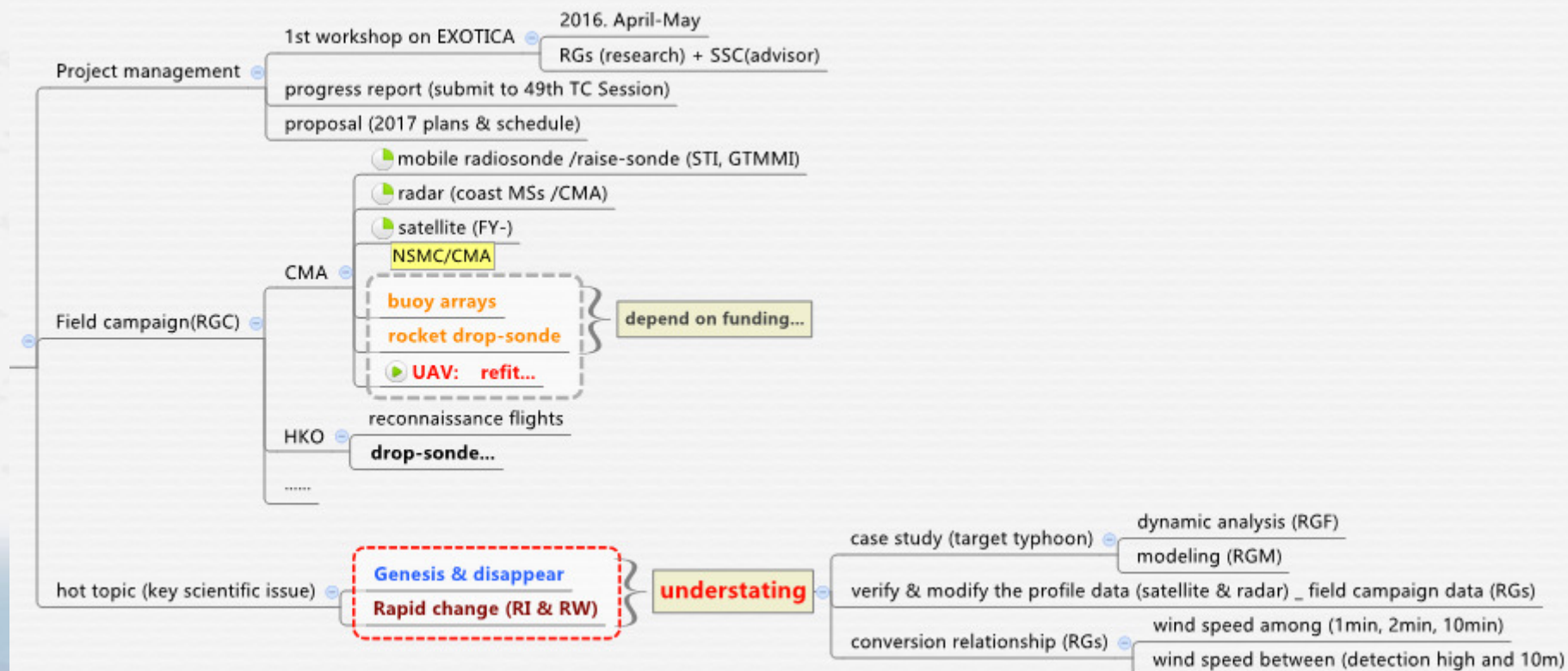


Plans (until 48th TC Session...)



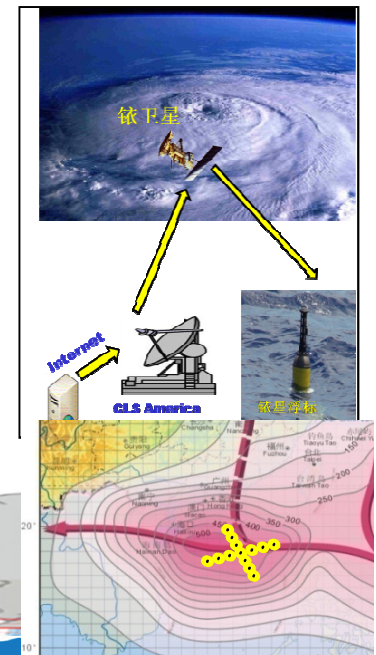
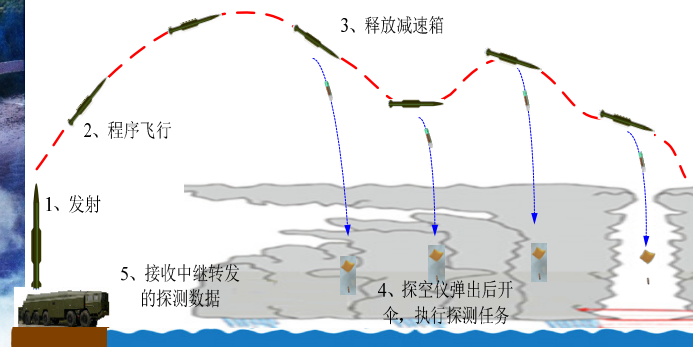
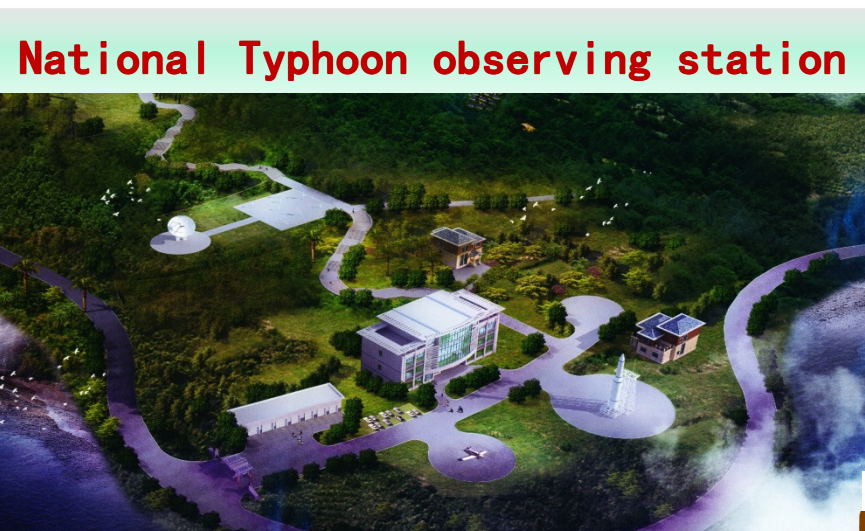


Plans (2016 Typhoon Season)



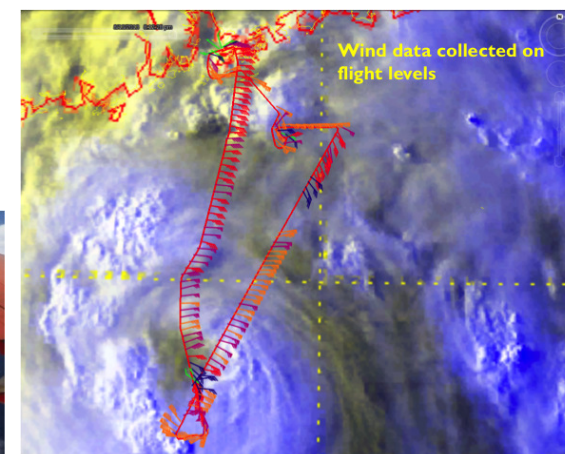
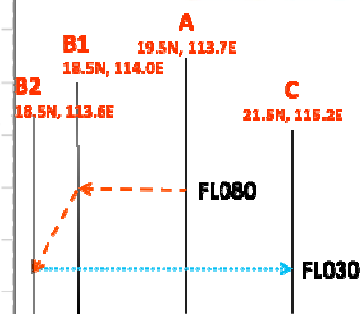
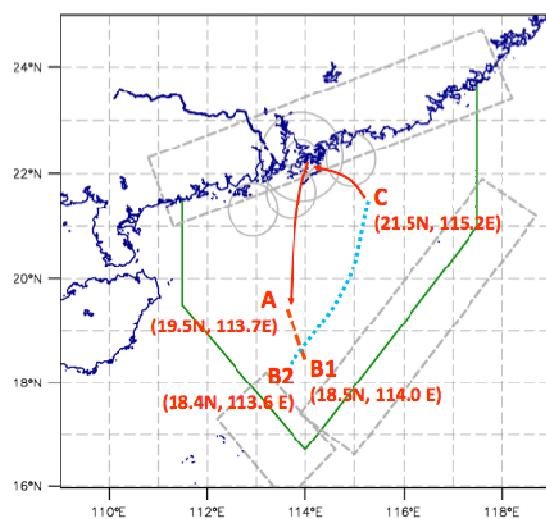
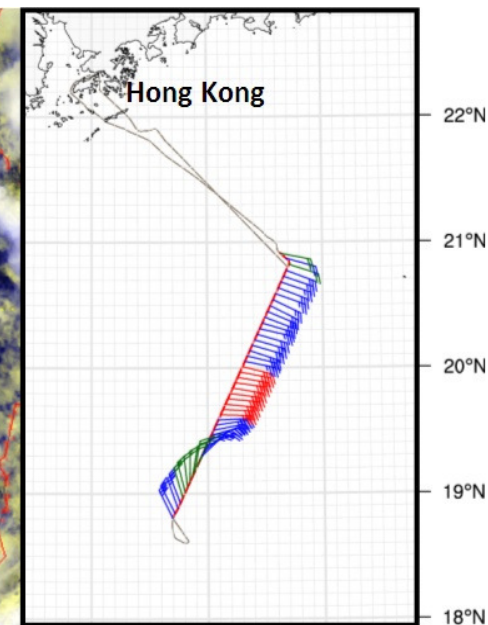
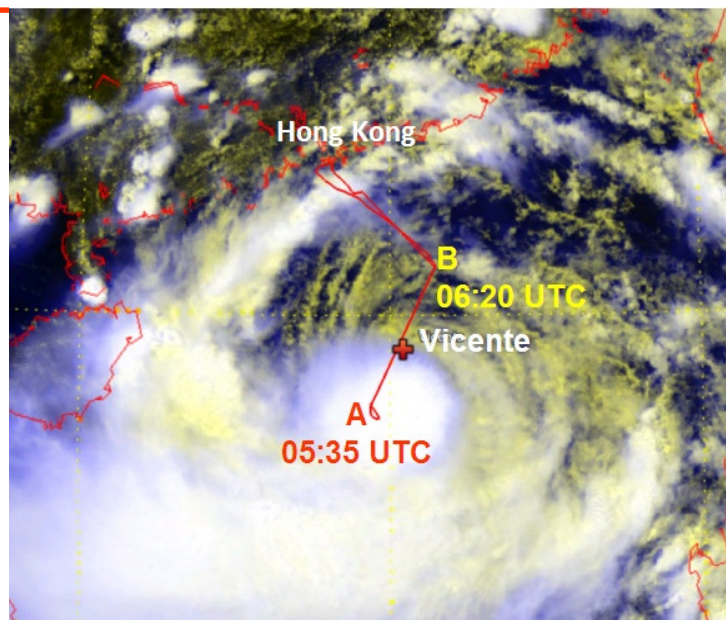
Planned action of China (pilot/spin-up....)

- To continue the mobile sounding (CMA)
- To build “National Typhoon Observing Station in East China”
- To pilot the un-man aircraft in ECS (S&T Ministry’s project)
- To pilot “Rocket sounding” in SCS & ECS (S&T Ministry’s project)
- To pilot “Yi-satellite buoy” in SCS (National key research program-973)





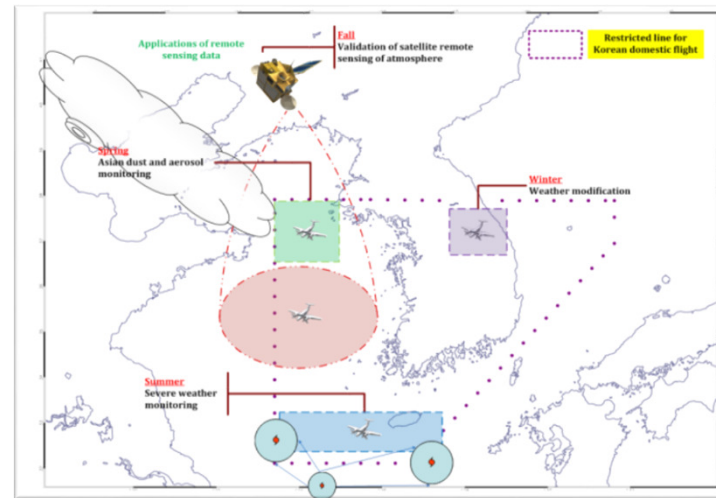
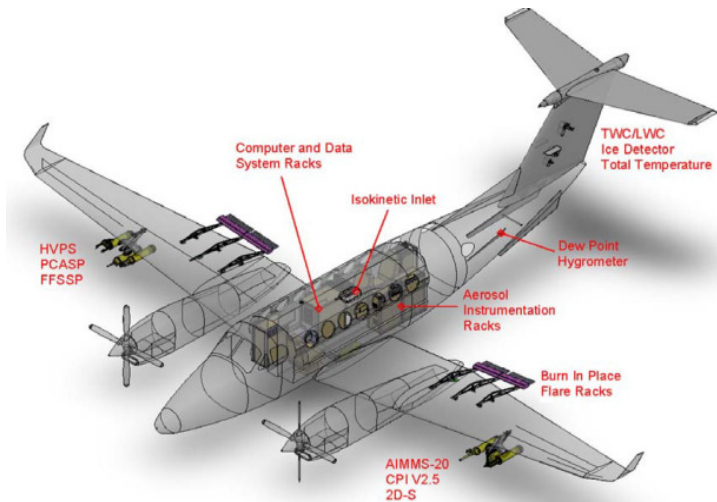
Surveillance flight (HKO , since 2012)





Planned action of ROK in 2015-2016

KMA launched the aircraft project for target observations



- ❖ Since 2012, KMA has begun an aircraft launching project for the purpose of severe weather
 - observation, the precipitation enhancement experiment and the characterization of the atmospheric
 - climate change.
- ❖ The aircraft will be equipped with 14 kinds of instruments, which include a dropsonde system,
 - glaciogenic and hygroscopic cloud seeding systems, four kinds of cloud property measurement
 - and atmospheric aerosol and pollutant gas monitoring systems.
- ❖ From 2016, KMA could carry out three dimensional target observation and the data would be
 - shared for domestic and international operation and research purpose.



Thank you for your attention!