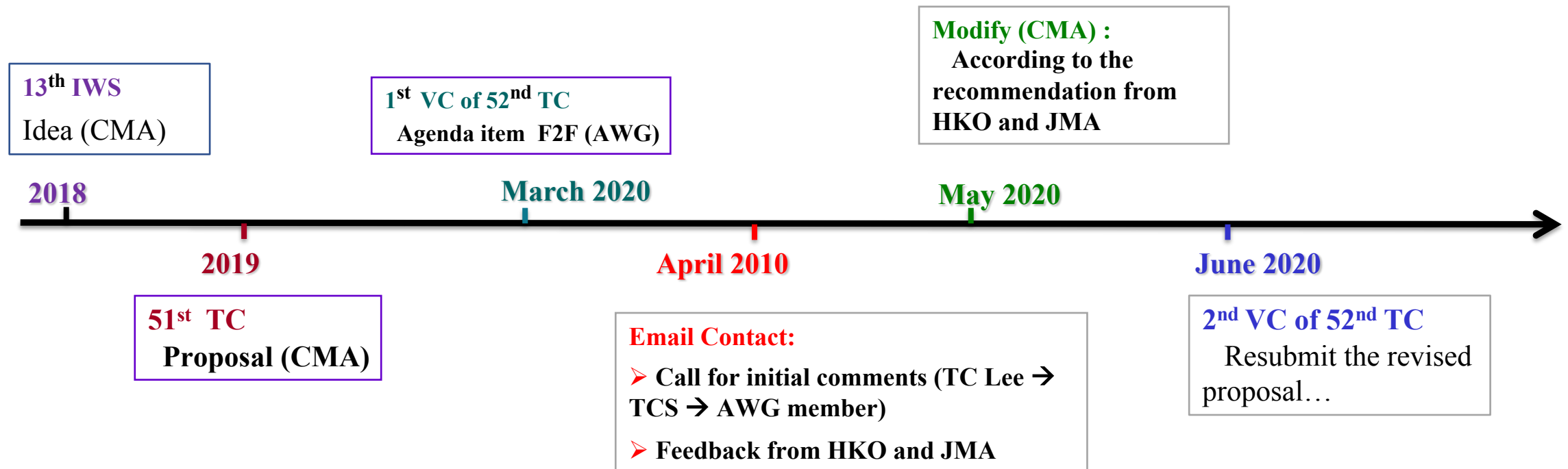


# Update the proposal of TC-CRC

(ESCAP/WMO TC Collaboration Research Center)

## APPENDIX XIV

### ➤ Footprint



# Update the proposal of ESCAP/WMO TC Collaboration Research Center (TC-CRC)

## ➤ Footprint

- 13<sup>th</sup> IWS (5-9 November 2018, Chiang Mai, Thailand), AWG meeting outcomes (10. Other business):
  - 2) Dr. Lei Xiaotu **proposed the idea** of establishing a typhoon research centre for linking the operation forecasting needs and research results with a view to improving the TC forecast accuracy in the Typhoon Committee region, in particular on the physics and forecasting techniques of some unusual or large forecast errors cases. The proposed centre will also benefit future cross cutting projects of Typhoon Committee. Dr. TC Lee remarked the need to synergize this initiative with the existing research groups / centers established by individual Typhoon Committee Members in order to avoid overlapping of efforts. **As requested by AWG, China will draft the proposal for discussion in TC51.**
- 51<sup>st</sup> TC (26 February-01 March 2019, Guangzhou, China), Final Report (Recommendation of WGM) :
  - cc) **To request** AWG to work with relevant Members and WGs to prepare a more detailed proposal on a new joint research platform that was proposed by China and to **submit to the 52nd annual session** for further consideration, especially paying attention to the comment to enhance research activities making the best use of existing mechanisms and functions to avoid duplication with other existing activities and functions
- 1<sup>st</sup> VC of 52<sup>nd</sup> TC (6 March 2020, Hong Kong, China), Report (Recommendation of AWG):
  - 19. The Committee took note that Dr. Lei XIAOTU submitted a proposal for the Collaboration Research Center and the **AWG was requested to consider including an agenda item for reviewing and discussing** the proposal during the face to face portion of the Session.

# Update the proposal of ESCAP/WMO TC Collaboration Research Center (TC-CRC)

## ➤ Footprint (cont.)

- 2 April 2020, TC Lee (vice-chair of AWG) email to Ray (chair of AWG), Eito (vice-chair of AWG), and TCS (Yu jixin, Denise) , suggest:
  - TCS circulating this draft proposal to AWG Members and TC Chairs for initial **comments** first.
  - Dr Lei could then revise the proposal to address/clarify the comments / feedback from AWG Members and TC Chairs.
- 3 April 2020, Yu jixin (TCS) email to TC chair and AWG member...
- 20 April 2020, **comments from (TC lee, Cheng Choming/TC chair, and HKO)...**
- 28 April 2020, **feedback from (Tanaka/vice-chair of AWG, JMA)...**
- End of May 2020, **resubmit** by Lei Xiaotu ...
  - ➔ **Tabling the revised proposal for Members' discussion**

# ESCAP/WMO TC Collaboration Research Center (proposal)

## (Brief introduction)

### ➤ Background

- ✓ Efforts and effectiveness of ESCAP/WMO TC
- ✓ **Challenge in operational forecast** (unusual behavior with sudden change)
- ✓ Most of the fund (AOP, Fellowship program, cross-cutting project, existed research institute... ) **cannot support specialist/scientists for necessary duration of stay** with access to enough resources (high performance computing, academic conference & assistant ...)
- ✓ **Lack of joint research on common issues** (existed institute: focus on the local)
- ✓ **Proposed** by CMA during 13<sup>th</sup> IWS, discussed at 51<sup>st</sup> TC
- ✓ Support by Shanghai municipal government and CMA (**7<sup>th</sup> cooperation meeting**)

### ➤ Aims & scopes

- ✓ Establish International typhoon collaborative research fund (**ITCRF**) project
- ✓ Strengthen cooperation
- ✓ **Raise visibility** of typhoon community & extend its impacts on economic and social development
- ✓ Key operational techniques (**based on Members' operational needs**)
- ✓ **Understanding** (Analyses and investigation on physical/dynamic mechanisms)
- ✓ Risk analysis & assessment, **impact-based** forecast

# ESCAP/WMO TC Collaboration Research Center (proposal)

## (Brief introduction)

### ➤ Organization structure

- ✓ International scientific steering committee (ISSC)
- ✓ **Director** board of the center
- ✓ **Research groups**
  - Coordination office: 2-3 full-time coordinators locally
  - Research teams: based on the ITCRF program
  - Several visiting assistant posts: recommended by TC Members

### ➤ Operating mechanism

- ✓ **Under the framework of ESCAP/WMO TC**
- ✓ Establish the ITCRF (support project team that will be recruited globally, Member priority)
- ✓ **Open-access** research mechanism in close collaboration with existed institutes, AOP and Fellowship program...
  - Establish an international **expert studio** (support the research office...)
  - **Technical training** & promotion of the achievements (coordinating with TRCG, training center)
  - Academic exchange (**high-level forum, young talents research forum**)

# ESCAP/WMO TC Collaboration Research Center (proposal)

## (Brief introduction)

### ➤ Budget and infrastructure

- ✓ Operation expenses (Shanghai Municipal Government): CNY 2 million per year
- ✓ ITCRF project funds (SMG): CNY 30 million per year in the early 5 years
- ✓ Office room (SMG): more than 2000 M2
- ✓ Other infrastructures: CMA

### ➤ Progress

- ✓ Draft proposal (footprint from 13<sup>th</sup> IWS to now)
- ✓ China (CMA & Shanghai Municipal Government):
  - The 7<sup>th</sup> **corporation meeting** between CMA and SMG
  - included in the Work Plan for the International Organization Settlement in Shanghai
  - Early stage, project the development of fine-scale typhoon forecast system in 2019 by SMG
  - international science and technology partnership project” in 2020
  - Office building: two houses in Zhangjiang Science Town, Pudong District of Shanghai
  - Budget: while TC endorse the proposal

# ESCAP/WMO TC Collaboration Research Center (proposal)

## (Description of revising: response to recommendation from JMA)

### ➤ Existed research institutions

Prevention and mitigation of tropical cyclones disaster are major challenges for all the Typhoon Committee Members. To achieve this goal, not only enhancement of monitoring and forecasting techniques of tropical cyclones but also research activities which provide useful knowledge and techniques for operational purposes are crucial for each Member. In Japan, JMA has the Meteorological Research Institute (MRI) which conducts a wide range of researches from fundamental/academic studies to investigations which would directly lead to the improvement of operational tropical cyclone forecasting. I think each Member has the same idea. ESCAP/WMO Typhoon Committee has a responsibility for promoting and coordinating research activities on tropical cyclones in the region.

### ➤ Response

The professional institutes of the Members have conducted a lot on the disaster monitoring and prediction under the coordination of the ESCAP/WMO Typhoon Committee. They have made significant contributions to the disasters prevention and mitigation. The establishment of the Center **is expected to set up a joint typhoon operational technique research platform** between scientists, operational forecasters and Members to carry out **collaboration research** on sustainable operational application, so as to promote the capacity building of typhoon operational forecast and service in the Asia Pacific region.

# ESCAP/WMO TC Collaboration Research Center (proposal)

## (Description of revising: response to recommendation from JMA)

### ➤ Benefits

Over the decades, the Typhoon Committee has made significant achievements in improving operational forecasting and mitigating disasters caused by tropical–cyclone-related hazards in the region through regional research projects and training workshops. However, I see a number of difficulties to establish a research organization under the framework and under the title of the Typhoon Committee. For one thing, we have to think whether the center could produce **benefits for the Committee Members** that justify the management cost. Another difficult challenge is whether **the Committee could coordinate new centers' research activities** so that they maintain consistency, while avoiding duplication, with **existing Committee's projects and activities**. I also have to point out the fact that the Committee **does not have rules** and defined procedures for establishment of an international center or an organization under the Committee; therefore, it is unclear how to authorize and give a title of the Committee to a center. In addition, research activities yield more successful results when **various institutes** are involved in their projects in a flexible and dynamic way rather than concentrating these activities in **one organization**. For these reasons, I'm afraid to say that it is not possible to accept the proposal as it is..

### ➤ Response



# ESCAP/WMO TC Collaboration Research Center (proposal)

## (Description of revising: response to recommendation from JMA)

### ➤ Benefits

Over the decades, the Typhoon Committee has made significant achievements in improving operational forecasting and mitigating disasters caused by tropical–cyclone-related hazards in the region through regional research projects and training workshops. However, I see a number of difficulties to establish a research organization under the framework and under the title of the Typhoon Committee. For one thing, we have to think whether the center could produce **benefits for the Committee Members** that justify the management cost. Another difficult challenge is whether **the Committee could coordinate new centers' research activities** so that they maintain consistency, while avoiding duplication, with **existing Committee's projects and activities**. I also have to point out the fact that the Committee **does not have rules** and defined procedures for establishment of an international center or an organization under the Committee; therefore, it is unclear how to authorize and give a title of the Committee to a center. In addition, research activities yield more successful results when **various institutes** are involved in their projects in a flexible and dynamic way rather than concentrating these activities in **one organization**. For these reasons, I'm afraid to say that it is not possible to accept the proposal as it is..

### ➤ Response

- ❑ The Center is **under** the framework of the ESCAP/WMO Typhoon Committee. The collaborative research activities will be **guided by the ISSC** (composed of relevant members of WGs, international experts and experts recommended by Members).
- ❑ The collaborative research activities conducted by the Center will be **complementary** to the existing research, education and training activities. **For example**, in combination with the Fellowship program, the **ITCRF will pay** the high-performance computing resources and the salary and living allowance for the visiting researchers.

# ESCAP/WMO TC Collaboration Research Center (proposal)

## (Description of revising: response to recommendation from JMA)

### ➤ Benefits

Over the decades, the Typhoon Committee has made significant achievements in improving operational forecasting and mitigating disasters caused by tropical–cyclone-related hazards in the region through regional research projects and training workshops. However, I see a number of difficulties to establish a research organization under the framework and under the title of the Typhoon Committee. For one thing, we have to think whether the center could produce **benefits for the Committee Members** that justify the management cost. Another difficult challenge is whether **the Committee could coordinate new centers' research activities** so that they maintain consistency, while avoiding duplication, with **existing Committee's projects and activities**. I also have to point out the fact that the Committee **does not have rules** and defined procedures for establishment of an international center or an organization under the Committee; therefore, it is unclear how to authorize and give a title of the Committee to a center. In addition, research activities yield more successful results when **various institutes** are involved in their projects in a flexible and dynamic way rather than concentrating these activities in **one organization**. For these reasons, I'm afraid to say that it is not possible to accept the proposal as it is..

### ➤ Response

- ❑ The ESCAP/WMO Typhoon Committee appreciates the efforts of Members to the disaster prevention and mitigation in the region. The proposal may be initiated after it is discussed and approved at the Session sufficiently. It is likely that the **Training Center** of the ESCAP/WMO Typhoon Committee was established by the Nanjing Training Center of WMO after its proposal was discussed at the **2014 Session**.

# ESCAP/WMO TC Collaboration Research Center (proposal)

## (Description of revising: response to recommendation from JMA)

### ➤ Benefits

Over the decades, the Typhoon Committee has made significant achievements in improving operational forecasting and mitigating disasters caused by tropical–cyclone-related hazards in the region through regional research projects and training workshops. However, I see a number of difficulties to establish a research organization under the framework and under the title of the Typhoon Committee. For one thing, we have to think whether the center could produce **benefits for the Committee Members** that justify the management cost. Another difficult challenge is whether **the Committee could coordinate new centers' research activities** so that they maintain consistency, while avoiding duplication, with **existing Committee's projects and activities**. I also have to point out the fact that the Committee **does not have rules** and defined procedures for establishment of an international center or an organization under the Committee; therefore, it is unclear how to authorize and give a title of the Committee to a center. In addition, research activities yield more successful results when **various institutes** are involved in their projects in a flexible and dynamic way rather than concentrating these activities in **one organization**. For these reasons, I'm afraid to say that it is not possible to accept the proposal as it is..

### ➤ Response

- ❑ The different professional institutions have their own advantages and research directions. They paid more attention to the **issues on the local** related typhoon scientific-technique problems. **In order to promote the capacity building** of typhoon research, operation and service in the **whole Asia Pacific region**, we need to set up a international platform among scientists, operational forecasters and Members to carry out **collaborative research on sustainable operational application**, **such as**, operational forecast technology of **difficult typhoon ,high impact cases** with severe loss, the technology and data information of typhoon identification, new instruments for monitors and analysis, typhoon **risk analysis** and impact-based forecast technology, typhoon data integration technology.

# ESCAP/WMO TC Collaboration Research Center (proposal)

## (Description of revising: response to recommendation from JMA)

### ➤ Wide range of options

I appreciate the continuous efforts of the Shanghai Typhoon Institute to promote research activities in Asia-Pacific region. The establishment of an international research center in Shanghai may provide researcher positions that contribute to capacity development of Asia-Pacific region. I believe the planned center would be beneficial for the tropical cyclone research community if it could propose various research projects that have synergies with the Typhoon Committee activities. The Committee should take this proposal as a call for the enhancement of research activities in this region, and it should extensively discuss **how to support and coordinate** Members' research activities, **considering a wide range of options, not limited to the establishment of a research center.**

### ➤ Response

- ❑ To establish the research center is **one of the way** (to support and coordinate Members' research activities)
- ❑ The reason why the Center will be established in Shanghai is that Shanghai municipal government will **support** the construction of the Center and has promise to provide enough **office house** and other **financial support**.

# ESCAP/WMO TC Collaboration Research Center (proposal)

## (Description of revising: response to recommendation from JMA)

### ➤ Wide range of options

If the Committee considers the establishment of a research center as an option for enhancing regional research activities, I would appreciate it if STI could resubmit AWG with clear explanations on planned collaborative research activities at this center; how this center could realize enhancement and cooperation of various existing research projects/activities as part of Typhoon Committee activities; and specific advantages brought by this staffed center, such as promotion of ESCAP/WMO activities and benefits for the Committee Members.

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### ➤ Response

- ❑ Under the framework of the ESCAP/WMO Typhoon Committee, the Center will establish an **open-access operational mechanism** to cooperate with the groups of the existing projects and the organizers of the training activities of the ESCAP/WMO Typhoon Committee.
- ❑ The center will establish the **ITCRF project** and the international expert Studio to strengthen the R & D of the operational technologies and the personnel exchange and training on the achievements for the needs of the Members.

# ESCAP/WMO TC Collaboration Research Center (proposal)

## (Description of revising: response to recommendation from HKO)

### ➤ Real-time forecast

It is not entirely clear how the establishment of the “Centre” can help operational TC forecast in REAL-TIME. If not, then what is the **benefit** of establishing just another research centre on top of those existing ones within the Typhoon Committee region?

### ➤ Response

- ❑ The Center will not carry out operational typhoon forecast, will not issue operational products for guidance either.
- ❑ It will focus on the **key operational technologies** development, so as to provide technical support for improving all of Member's capability in typhoon operational forecasting by resolving some key problems issued by different Members and working together continually.
- ❑ Moreover, the key technologies are aimed at the bottleneck problem and **real needs** from the Members, especially some common issues that limit typhoon prediction ability of Member in the region. Therefore, the technologies jointly developed by the Center can be used directly in the Members' actual needs.
- ❑ Center will establish a new collaborative research mechanism under the direct of “from the operation needs and for the operation application (**N2R-R2O**)”. Also try establish an international platform and **hold various workshop and training course** to promote the personnel exchanges among the Members, so as to provide strong support for promoting the capacity of typhoon research, forecast and service in the whole Asia Pacific region and benefit all the members.

## ESCAP/WMO TC Collaboration Research Center (proposal)

### (Benefit)

#### ➤ ESCAP/WMO TC

- ✓ Enhance collaboration research ( by establish the ITCRF)
- ✓ Improve the operational skill (by developing the key operational techniques)
- ✓ Raise visibility of typhoon community (achievement promotion & forum)

#### ➤ TC Members

- ✓ ITCRF project (based on the operational need from TC Members)
- ✓ Improve the operational skill
- ✓ Cultivate talent (by joint the ITCRF project research team & visiting & training & forum)

## ESCAP/WMO TC Collaboration Research Center (proposal) (Benefit)

### ➤ recommendation

- ✓ To request TCS to call the Members' recommendation if any, and feedback before the end of August.
- ✓ To request CMA to revise the proposal according to the received recommendations from Members, and submit to 53<sup>rd</sup> TC for discuss and endorse...

**- Budget: while TC endorse the proposal**