

Innovating live Participants' Forums as a diverse teaching mode to facilitate creative collaboration for Meteorology Plus - Meteorology as an Enabler in other sectors

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A brief introduction to CMATC. The China Meteorological Administration (CMA) Training Centre, a comprehensive, professional, and high-level meteorological education and training institution that integrates administration and meteorological professional continuing education, is a national base for high-level continuing education and on-the-job training in the meteorological sector. The CMA Training Centre (CMATC) was recognized by the World Meteorological Organization as the WMO Beijing Regional Training Centre (RTC-Beijing) in 2003. From 2003 to 2022, RTC-Beijing has held 99 international training courses for a total of 8,095 international participants from 168 countries and regions, covering all six WMO Regional Associations. RTC-Beijing undertook the largest amount of global distance training among all the WMO RTCs in 2021 and 2022, and was recognized as "one of the three most active regional training centres among the 43 regional training centres in WMO", "model for implementing competency training" and "trend-setter" for distance meteorological training.

Online training platform. Since 2013 when WMO first proposed the concept of global campus, RTC-Beijing has paid great attention to it by committing itself to developing relevant international training resources. In order to meet the needs of distance training, RTC-Beijing's MOOC website was developed in 2015, and from 2018 to 2022, 27 distance training courses had been launched, benefiting 6,956 participants from 153 countries and regions. RTC-Beijing has realized a paradigm shift by introducing a diverse instead of traditional monotype teaching mode that features modern distance/online delivery to make best use of resources for a richer and better performance, and has strengthened the development of international training resources for the benefit of developing and least developed countries in human capacity building and meteorological service delivery.

Table 1. List of the training activities (2003-2023)

	Field	Number of Workshops
1	Satellite Meteorology	22
2	Climate Services and Climate Change	18
3	Nowcasting Techniques	13
4	Aeronautical Meteorology	11
5	Attached forecaster training for overseas fellowship recipients	10
6	Tropical Cyclone	8
7	Disaster Prevention and Mitigation	8
8	Agricultural Meteorology	6
9	Meteorological Observation	6

10	Weather Modification	4
11	NMHS Management	3
12	Numerical Weather Prediction	1
13	Others	9

External cooperation for Meteorology Plus. RTC-Beijing gives full play to its geographical advantages arising from its colocation with other central CMA facilities and its easy access to the latter's resources. RTC-Beijing extensively cooperates with various institutions from different fields, pays attention to the exchange and development of training experience and theory, and unites various institutions and different units of CMA to customize professional skills and management training. Deep cooperation was established with Academy for International Business Officials (AIBO) of MOFCOM, Foreign Environmental Cooperation Centre of Ministry of Ecology and Environment, School of Administration of the State Administration for Market Regulation, Agricultural Information Institute of CAAS, and Foreign Economic Cooperation Centre of MARA. RTC-Beijing faculty is empowered with its domestic and international counterparts plus senior experts and scholars from the National Meteorological Centre (NMC), National Climate Centre (NCC), National Satellite Meteorological Centre (NSMC) and Civil Aviation Meteorological Centre to teach participants the latest progress and selected exemplars in the fields of operational technology, practical applications, strategic policies, etc. Experts from WMO, EUMETSAT, ICAO, US, UK, Australia and other countries or international organizations are invited to give lectures and join the Forums at workshops to broaden the participants' international vision. At the same time, RTC-Beijing strengthens cooperation with other regional centres such as the World Meteorological Centre (Beijing) and regional WIGOS centres to jointly organize international training workshops and actively perform its duties as a RTC.

Live Participants' Forums. RTC-Beijing attaches great importance to group management, increasing the proportion of live lectures, organizing tests and Q&A sessions, etc. RTC-Beijing gained much experience in organizing in-person Participants' Forums and at least one Forum was held for each training activities. Since 2021, RTC-BJ has innovated live Participants' Forums as part of the distance training activities, promoting friendship among participants, increasing instant interaction, promoting operation experience exchanges among participants from various countries, promoting the dissemination and learning of good practice, and improving the effect of international distance training. By introducing online meeting and MOOC online study platform to facilitate live Participants' Forums as one of the diverse teaching mode, creative collaboration for Meteorology Plus - Meteorology as an Enabler in other sectors and interdisciplinary cooperation is promoted. The participants can benefit from a wide range of expertise of fellow colleagues including transportation, medical care & health, energy, water conservancy, disaster prevention and mitigation, tourism, agriculture, ecology & environment, finance, insurance, etc, and have a better understanding on creative collaboration. Relevant courses have received positive responses from international participants, and at present, more than 1,000 messages have been uploaded and shared by participants, giving full play to the role of international training experience sharing and exchange platform.

Speakers. The speakers of the Forums includes both the specially invited senior experts as

keynote speakers and participants from all around the globe. The invited keynote speakers include senior officials, professors, experienced engineers; colleagues who participated in the previous training activities and achieved outstanding performance may also be invited. All participants of the training activities working in UN systems, NMHSs and relevant departments, academia, other multidisciplinary sectors, etc. are encouraged to take an active part in and make contributions to the Forums.

Facilitators. The facilitators, with a wide range of expertise including meteorology, agriculture, geophysics, intercultural communication, education, interpretation, language and literature, are the course managers of RTC-Beijing. There are 2-3 facilitators for each Forum, and the team member may vary according to the topics and time schedule. The facilitators join the discussions actively, raising questions to stimulate discussions and exchange of thoughts, while making sure that all colleagues have opportunities to share their ideas.

Topics. The topics of the Forums are carefully designed to fit the theme of the training activities, so as to stimulate the heated discussion among participants working in the relevant fields. Months before the Forum, questionnaires will be sent out along with application form of the training activities, and participants may indicate their interested topics of the Forum. Based on the information collected and following the vital initiatives such as early warning for all, gender mainstreaming etc., some topics are proposed in advance to facilitate creative thinking, while participants are also free to nominate other topics that they would like to discuss.

Table 2. List of the Topics Discussed in April - October 2023

	Forums	Topics
1	Early Career Development of NMHS Youth	Identifying the capacity gaps which limit the personal development
2		Policy/project/programme/proposal/external and internal support for early career capacity development
3		Your personal experiences and suggestions on early career capacity development
4	NMHS Youth and Rural Development	Agricultural meteorology services and rural development: policy and future plans
5		Youth' s contribution to rural development and your experience
6		Case of rural development and your own experience
7	NMHS Youth and Climate Change	Climate change monitoring and impact assessment
8		Climate change mitigation and adaptation
9		Youth' s contribution to climate change-related disaster prevention, response and recovery
10		Sustainable/low carbon development strategy and practice
11	Meteorology and National Cultures	/ (Open for discussion)
12	Aeronautical Meteorology Services Cases	Case analysis of typical weather systems
13		Case of comparison of different NWP (numerical weather prediction) models and products
14		Case of SIGMET and SIGMET Coordination

15		Case of utilizing Doppler Weather Radar, lightening sensor, satellite etc. in observation and forecast and the possible difficulties
16		Innovations, future plans and difficulties faced in Aeronautical Meteorology Services and your experience
17		Meteorological disasters and their impacts
18	Early Warning for All (EW4ALL)	Policies and actions towards meteorological disasters prevention and mitigation
19		Response of my department to the UN EW4ALL Initiative
20		The Early Warning System (EWS) and its possible application
21		Glass ceiling for female managers
22	The Role of Women in Management	Work-life balance of female employees
23		The future of female leadership
24		Initiatives to empower women and encourage their unique contributions
25		Good practice and experience in female management
26		Female multiplier effect on Sustainable Development Goals
27		Principles of inclusive leadership and female contributions
28	Meteorology Plus:	Cases of Meteorology as an Enabler in Other Sectors
29	Meteorology as an Enabler in Other Sectors	Difficulties/Problems Encountered in Cooperation
30		Methods/Policies to Narrow the Gap

Standard procedure. 1-2 Participants' Forums are arranged for each training activity. The information about the Forums is available upon the opening of each training course/seminar/workshop, with 10-12 days for participants to indicate their interest and make preparation. The information will be sent out via email and be posted on our website. All participants are invited to give a 5 to 8 minutes' report followed by open discussions. The Forum will last for 3-6 hours according to the number of speakers and questions in discussions. Each participant can indicate their time preference in advance (prefer to present in the first half of the Forum/the second half of the Forum/either works well). Considering time difference and the needs for revision, the Forums are recorded and the recordings are available on our MOOC website. Interested participants or colleagues encountering technical issues may also send videos to us which will also be incorporated into the video recordings on the website upon request.

Cooperation. The Forum facilitate creative collaboration in 3 ways.

- ✓ Speeches given by colleagues from different sectors;
- ✓ Open discussions among colleagues with diverse expertise;
- ✓ Future information exchange and cooperation.

The participants have diverse backgrounds and work in different sectors, while most of them have experience in collaboration among meteorology and other sectors. During the Forum, colleagues can learn from each other's ideas, thoughts and operational experiences. The processes of both input and output benefit all the participants. Besides, participants sometimes exchange their email and set up future cooperation and lasting friendship.

Meteo-culture cafe break. Cafe break is arranged in some of the Forums. During the intervening time, participants who attend the Forums may watch the pre-recorded videos about Meteo-culture produced by RTC-Beijing. Four types of videos on weather and climate, folk customs, history and culture, and current affairs have been offered, and the whole process of development with 10 steps including preparation, script finalization, video production and review are under strict control, so as to improve the quality and help cultural exchanges among countries around the world. In 2022 alone, 88 hours of the videos about Meteo-culture have been produced, and was launched in international training workshops. Participants commented that "cultural elements are integrated into the training to make it more colorful and interesting" and "I enjoy the cultural parts". This specially designed cafe break also facilitate the cooperation between meteorology sector and tourism.

Part of the photos taken in the previous Participants' Forums

