



Typhoon Committee Newsletter

Thirty-Seventh Session of the Typhoon Committee



Opening of the thirty-seventh session of the Typhoon Committee held at the Shanghai Meteorological Bureau conference hall.

Prevention Award was presented to China's National Meteorological Center during the opening of the session. The session also elected China's Xu Xiaofeng and USA's Jeffrey LaDouce, as chairman and vice-chairman of the Committee, respectively.

Reviewing the activities under its meteorological, hydrological, and disaster prevention and preparedness components, as well as in training and research, the Committee established the working groups on meteorology (WGM) and disaster prevention and preparedness (WGDPP), and also re-established the working group on hydrology (WGH).

The WGM was requested to address the issues on the level of advancement and capacity of the members' National Meteorological and Hydrological Services (NMHSs); sharing of experiences among members; and linkages with requirements and activities of other TC working groups, and training and research.

The Committee called on international organizations to provide support to future activities of the WGDPP.

The Committee also urged the ESCAP, WMO, other development

Asia-Pacific meteorologists meeting in the thirty-seventh annual session of the Typhoon Committee held in Shanghai, China on 16-20 November 2004, discussed year-round efforts to strengthen weather forecasting capabilities to mitigate the damaging effects of typhoons in the western North Pacific region which includes China, Japan, Korea, the countries of Southeast Asia and USA.

More than 80 representatives from members of the regional working group including observers

from UNEP, UN-ISDR, CAS and ADRC attended the 5-day session.

Opening remarks were delivered by Hu Yan Zhao, Mayor of Shanghai; Qin Dahe, administrator of China Meteorological Administration; Le-Huu Ti, representative of the Economic and Social Commission for Asia and the Pacific (ESCAP) and Eisa H. Al-Majed, representative of the World Meteorological Organization (WMO).

In simple rite, the 2004 Typhoon Committee Natural Disaster



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partners and its own members to provide assistance for capacity building to Cambodia, DPRK (North Korea) and Laos through training fellowships and attachments to advanced centers, and upgrading of observation and telecommunication facilities even as the WMO decided to reduce the support cost of the Typhoon Committee Trust Fund (TCTF) from 13% to 7%.

The Committee approved to hold the Regional Workshop on Effective Tropical Cyclone Warning, to be held in China in April 2005, and the Workshop on Risk Management towards Millennium Development Goals and Socio-economic Impact Assessment of Typhoon-related Disasters for TC hydrologists, in Malaysia in September 2005.

On achieving the goals of the Regional Cooperation Program Implementation Plan (RCPIP), the Committee requested the Advisory Working Group (AWG) and the Typhoon Committee Secretariat (TCS), to develop a strategic annual work plan providing detailed actions and specific measures for this purpose, in consultation with all the members.



Dr. Kintanar speaks at the session



Top officials (from left), Dr Xu Xiaofeng, Chairman of TC; Dr Roman L. Kintanar, Interim Secretary of TC; Mr. Le-Huu Ti, ESCAP representative; Dr Qin Dahe, CMA Administrator; Mr Hu Yan Zhao, Shanghai Deputy-Mayor; Mr Eisa H. Al-Majed, WMO representative; and Mr Sheng Jiarong, Shanghai Meteorological Bureau director-general, preside the opening of the 37th session.

The AWG was also tasked to undertake the process of collecting additional information and to develop hosting options for the TC secretariat for sound decision-making through visits and consultations with members.

The Committee also approved to allocate additional resources to create a world-class TC website in order to help boost and strengthen its image as a result-oriented regional organization.

It requested Hong Kong to assist in the registration of proper domain names and to draw up a detailed action plan for this purpose.

Meanwhile, China informed its co-members of the successful launching

of its first operational geostationary meteorological satellite, FY-2C, located at 105°E, on 19 October 2004. The FY-2C will be brought to full operation in March 2005.

The session concluded with the approval of the offer from the Government of Viet Nam to host



Representatives of Viet Nam

the thirty eighth session of the Committee in Hanoi in November 2005.

CMA's National Meteorological Center wins Typhoon Committee Natural Disaster Prevention Award 2004



NMC director-general Jiao Meiyuan beams with pride as she accepts the TC award from TCFI chairman Roman L. Kintanar (right) and board of director Angelo B. Palmones.

The National Meteorological Center (NMC) of China Meteorological Administration (CMA) received the 2004 Typhoon Committee Natural Disaster Prevention Award, for its second win, having shared the prize in 1992 with China's Flood Control Headquarters.

The NMC was voted for its continued and unrelenting efforts in improving China's operational forecasting system for the benefit of disaster preparedness and mitigation, including the establishment of 1) global typhoon-track numerical prediction system which reduced forecasting error by 100 km in the 48-hour forecasts; 2) the new generation Doppler weather radar which greatly enhanced accuracy in locating center of typhoon over Chinese coastal waters; and 3) the operational multi-member ensemble forecast

system for tropical cyclone tracks which improved efficiency of forecasters and the quality of operational tropical cyclone track prediction.

The 2004 annual TC award was received by NMC director-general Jiao Meiyuan, on behalf of the NMC, during the opening of the 37th session of TC, in Shanghai, China, on 16 November 2004. TCFI Chairman Roman L. Kintanar and board of director Angelo B. Palmones presided the simple award presentation.

Year 2004 marked the awarding of the thirteenth TC Award, a pet project of the TCFI which was first presented in 1989 in Tokyo, Japan, to honor outstanding achievements in disaster prevention awareness. No award was presented in 1991 and 1998.



Director-General Meiyuan delivers her acceptance speech.

TC changes



Dr. Shin

Shin named new administrator of KMA

Dr. Kyung-sup

Shin was appointed as administrator of the Korea Meteorological Administration (KMA) succeeding Dr. Myoung-Hwan Ahn

on 16 October 2004. Shin, 53, earned his doctorate and master's degree in Meteorology from Texas A&M University (1986) and University of Illinois (1982), respectively.

Shin joined the KMA in 1990 as a forecaster. Prior to being named administrator, he was director of the Forecast Bureau. He held the post as director-general of the Climate and Forecast Bureaus

from 2001 to 2004 and served as director of the Numerical Weather Prediction Division from 1991 to 1996.

Shin has actively participated in the international activities of WMO as permanent representative of the Republic of Korea. He is a member of Korea Meteorological Society, American Meteorological Society and American Geophysical

Union.

Foong is new director-general of SMS



Mr. Chee Leong

Mr. Foong

Foong has been appointed as director general of the Singapore Meteorological Services on 22 June 2005, taking over from Mr. Shih Lai Woon who retired from

service.

Foong obtained a degree in Chemical Engineering from the University of Canterbury, New Zealand in 1974 and post-graduate diploma in Sanitary Engineering from the Institute of Hydraulic and Environmental Engineering, Delft, Netherlands in 1987.

Foong has been with the Ministry of Environment and Water

Resources and the National Environment Agency for 31 years working in the field of air, water and noise pollution control, wastewater treatment, environmental planning and building development control.

He was head of the Pollution Control Department prior to his appointment as director-general of the Meteorological Services Division.



NEWS FROM TC MEMBERS

PHILIPPINES

Press conference on typhoon impact

The Typhoon Committee Foundation, Inc. (TCFI) conducted a press conference on typhoon impact on December 10 on the heels of four powerful typhoons (Muifa, Merbok, Nanmadol and Winnie-local name) that struck northern Philippines in a span of two weeks, late November to early December 2004 which claimed the lives of more than a thousand people. The meeting was co-organized by the Typhoon Committee Secretariat (TCS) in cooperation with PAGASA.

Dr. Roman Kintanar, interim secretary of TC, briefed the press on the current capabilities of hydrometeorological services in the region to mitigate the adverse effects of typhoons. He said the worsening global warming was causing stronger typhoons as high as 250 kph and that the best step to mitigate damage was to have accurate warnings where these typhoons would hit.

Kintanar advised the government to be better prepared for these super storms, adding the TCFI was trying to help the Typhoon Committee and that the Philippines, for its part, should step up efforts to improve its warning system.

Guest speaker, Congress representative Francis Escudero, who supports pro-active action in dealing with natural calamities regretted that the request of PAGASA for increased budget was not heeded by the House majority under the 2005 Gen. Appropriations Act of Congress. He added that he and other congressmen were pooling their own contributions to support PAGASA and the TCFI.



Angelo Palmones of TCFI (speaking) with PAGASA information officer Venus Valdemoro, Hon. Francis Escudero (center) and TC secretary Roman Kintanar at the press conference.

MELANIE AQUINO

PAGASA day, WMD 2005 marked



Science undersecretary R. Panlasigui assisted by Dr. Kintanar and

Weathermen left their work places and took to the streets to mark the 140th anniversary of the Philippine Atmospheric, Geophysical and Astronomical Administration (PAGASA) in joint observance of 55th World Meteorological Day on 21 March 2005. The morning exercise kicked off a daylong WMD functions organized by the local weather agency in line with the double celebration.

The activities included exhibits, film showing, lectures, open forum and technical presentations which focused on the WMD 2005 theme – Weather, Water, Climate and Sustainable Development. The affair was led by PAGASA officer-in-charge Graciano P. Yumul, Jr., DOST Undersecretary Rogelio A. Panlasigui, and PAGASA deputy-directors Nathaniel T. Servando, Prisco D. Nilo and Martin F. Rellin, Jr.

Int'l geoscientists meeting held

An international meeting of geoscientists organized by the Romblon Working Group in cooperation with PAGASA, was held in Romblon, southern Philippines, from June 6-12, 2005 with participants from France, China, Japan, Taiwan and the Philippines.

The Romblon International Meeting (RIM) also included a 2-day conference held in Quezon City and a post-meeting fieldwork conducted in Tablas Island and Buruanga Peninsula. Geoscientists presented scientific papers and discussed the geologic and tectonic evolution of Southeast Asia and the Philippines.

PAGASA's participation was centered on its proposals to mitigate landslides and tsunamis in light of the recent landslide disaster in Aurora province and the great December 26 Indian Ocean tsunami.

National typhoon and flood awareness week launched



Yumul Jr.

R. ADORA

The Philippines officially declared the third week of June 2005 as Typhoon and Flood Awareness week aimed at addressing the need to educate the public and promote hazards and mitigation awareness on typhoon and flood through public information dissemination campaigns throughout the archipelago.



Poster-making contest winners (elementary level) pose with science sec. E. Alabastro and TC sec. R. L. Kintanar. Roque Adora

Typhoon Committee Foundation, Inc. (TCFI), other government agencies and the private sector.

The typhoon and flood awareness week was launched at a press conference on June 17, organized by PAGASA, TCFI and PsciJourn and co-sponsored by the department of Local Government. The conference included the awarding of winners of the on-the-spot poster making contest for elementary and high school students.



High School level winners

R. ADORA

A seminar/workshop on disaster preparedness on typhoons and floods was also held in PAGASA graced by science secretary Estrella Alabastro, local government secretary Angelo Reyes, TCFI chairman and TCS secretary Roman L. Kintanar, PAGASA officer-in-charge Graciano Yumul, Jr., other PAGASA officials and members of media. Yumul spoke on the 4-point Action Plan for disaster preparedness prepared by the National Disaster Coordinating Council (NDCC).

weather tracking radar reopened

PAGASA's newly upgraded weather radar, located in Aparri, northern Philippines, was back to full operation in July 2005. The radar, part of PAGASA's network of meteorological radar systems, is expected to strengthen the country's capacity in detecting approaching tropical cyclones.

The Aparri radar was damaged in 2001 in the aftermath of typhoon Fera. Four other weather radars undergoing repair are located in the provinces of Virac, Baler, Butuan and Baguio.

The formal launching of the Aparri radar was attended by local officials led by Cagayan governor Edgar Lara and Aparri mayor Ismael Tumaru. DOST and PAGASA officials were headed by science secretary Estrella Alabastro and director Graciano Yumul Jr., respectively.

Meanwhile, a four-year project between the Philippines and Australia was launched in July for the purpose of finding ways to integrate seasonal climate forecasts (SCFs) into the risk management practices of local farmers and other decision makers. SCFs, which predict the probability of rainfall, are issued prior to the start of an agricultural season.

The launching ceremony was attended by, among others, Director G. Yumul of PAGASA, Australian Ambassador Tony Hely, Philippine Institute for Development Studies (PIDS) president Josef Yap and Philippines country manager Cecilia Honrado of the Australian Center for International Agricultural research (ACIAR).



View of Aparri radar

R. ADORA



Guest officials at the Aparri radar reopening ceremony.

R. ADORA

AWG Chairman visits TCS and PAGASA



Dr. Chow (right) during his talks with TCS and PAGASA officials.

R. Adora

Dr. Chow Kok Kee, chairman of the Typhoon Committee Advisory Working Group (AWG), visited the Typhoon Committee Secretariat (TCS) and PAGASA on 18-20 September 2005, to gather additional information on the Philippines' offer regarding hosting of TCS.

Chow met with the secretary of Typhoon Committee, Roman L. Kintanar, and PAGASA deputy directors Nathaniel Servando, Martin

F. Rellin, Jr. and Prisco Nilo regarding the details of the offer for the continued hosting of TCS by the Philippines.

James Weyman, vice chairman of AWG and director of RSMC Honolulu cancelled his participation in the AWG mission to be with emergency managers in Hawaii as tropical cyclones threatened the islands. Chow proceeded to Macau for the second leg of the AWG mission.

HONG KONG

HKO's numerical TC track forecast on the GTS

In an effort to promote wider information sharing among WMO members on tropical cyclone track forecasts, Hong Kong has started transmitting numerical forecast products over the GTS for global

distribution since 15 April 2005. The product, based on outputs of the Hong Kong Observatory's Operational Regional Spectral Model (adapted from the Japan Meteorological Agency) running at 60 km horizontal resolution, provides 6-hourly tropical cyclone positions and intensities with a validity period up to 72 hours, whenever a tropical cyclone with intensity classified as Tropical Depression or above is within the region 10-30N, 105-125E. It is issued twice daily, based on forecasts at 00 and 12 UTC, respectively.

Shanghai fellow completes HKO training



Wang Dongliang during her attachment at HKO.

Wang Dongliang of Shanghai Typhoon Institute completed a 2-month attachment program at the Hong Kong Observatory under the Typhoon Committee research fellowship scheme. Ms Wang conducted a research on assessment of the effects of tropical cyclone bogus data using different data assimilation systems and bogussing strategies. Through a suite of specially designed numerical experiments and based on case studies of selected tropical cyclones in 2002, more realistic vortex structures were obtained and short-term track forecasts were generally improved.

Probability forecast of local tropical cyclone signal changes

Probability forecasts of local tropical cyclone (TC) signal changes, based on statistical and NWP techniques, were introduced and communicated to public transport operators in Hong Kong for the first time in 2004 on a trial basis. The enhanced TC service facilitates operators' planning for the suspension and resumption of transport services in TC situations.

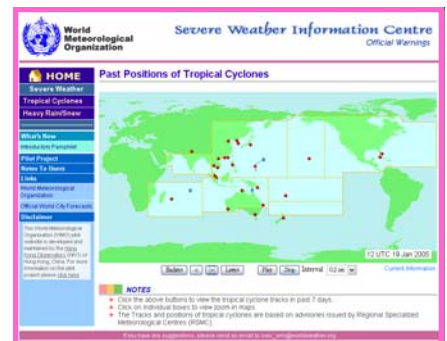


A web-based tool for generating objective guidance in support of forecasters' issuance of probability forecast of TC signal changes.

Special briefings on the use of probability forecasts were provided to the users. The trial service was generally well received and would continue in 2005.

SWIC web site update

With the approval of the Commission for Basic Systems, the Severe Weather Information Center (SWIC) web site (<http://severe.worldweather.org>) became an operational component of the PWS Programme of WMO on March 23, 2005. The web site homepage shows tropical cyclone positions and forecast tracks, with a recap function to enable retrieval of information for the past 7 days. The web site is being enhanced with severe weather information based on SYNOP reports. A new web page showing locations of "Heavy Rain/Snow" in the world was added in 2004. Hong Kong will continue to operate and further develop SWIC on behalf of WMO.



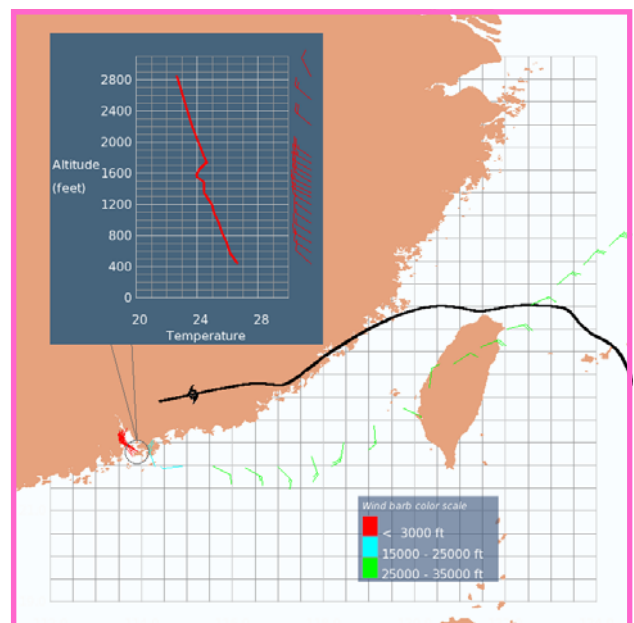
Tropical cyclone display with the recap function

Aircraft AMDAR observation during Aere's passage

The Hong Kong Observatory joined the WMO AMDAR (Aircraft Meteorological Data Relay) weather observation programme and started reception of AMDAR reports from local airlines in April 2004.

At the height of tropical storm Aere, on 26 August 2004, a local aircraft departed from the Hong Kong International Airport producing a vertical ascent up to 3,000 feet. AMDAR reports supplemented the conventional vertical sounding observations and provided much needed weather information over the data-sparse South China Sea.

Weather observations received from an aircraft departing Hong Kong at 1547 UTC on 26 April 2004 during the passage of Tropical Storm Aere. (The symbol of Tropical Cyclone Aere indicates its location at 16 UTC 26 April 2004)





Winners of name-a-TC-contest pose with the judges.

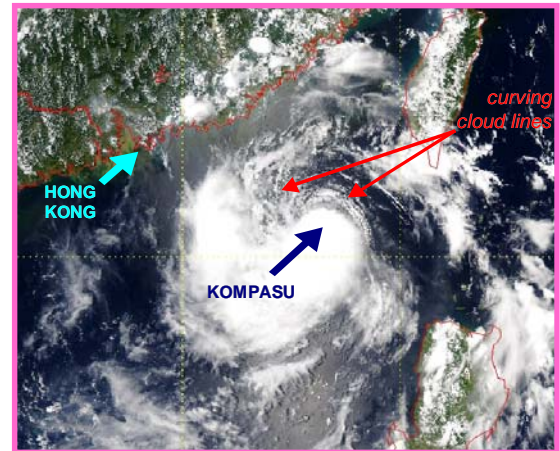
Name a tropical cyclone contest held

A name a tropical cyclone contest, jointly organized by the Hong Kong Observatory and Radio Television Hong Kong in April 2005, attracted more than 25,000 entries. The winning names, 'Taichi' and 'Kopak', will be submitted to the Typhoon Committee as replacement of two current names provided by Hong Kong, China.

MODIS images for tropical cyclone observation

In mid-2004, the Hong Kong Observatory started receiving images from Moderate Resolution Imaging Spectroradiometer (MODIS) on board NASA's Earth Observing System series of satellites. With a high resolution of 250 m, MODIS images enable a closer view of the structure of tropical cyclones.

A true color image of Tropical Storm Kompasu on 15 July 2004, depicting vividly the subtle feature of low-level curving cloud lines which facilitate the determination of Kompasu's circulation center is shown in right figure.

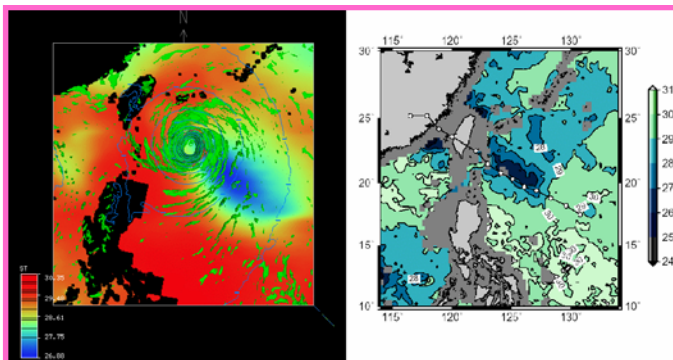


High resolution true colour image captured by MODIS on 15 July 2004.

JAPAN

SST cooling reproduced by high-resolution coupled model

For accurate prediction of typhoon intensity, air-sea interaction is a key factor to be incorporated into numerical models since strong wind around typhoons



Simulated SST field SST (shaded in color), sea surface pressure (contoured in blue) and cloud water (shaded in green) simulated by the coupled model.

Observed SST fields SST (contoured in color) estimated from TRMM TMI data.

significantly cools down SST and consequently suppresses typhoon development. This phenomenon is well simulated with high-resolution models.

A mixed-layer ocean model developed at MRI (Meteorological Research Institute) of JMA was coupled to the MRI/NPD (Numerical Prediction Division of JMA) unified nonhydrostatic model with a horizontal resolution of 6 km. Preliminary numerical experiments for the case of Typhoon Bilis (2000) reproduced successfully SST cooling to the right of the typhoon movement.

Int'l training on typhoon monitoring and forecasting in the Western North Pacific

An international training seminar on typhoon Monitoring and forecasting in the Western North Pacific was held at the RSMC Tokyo-Typhoon Center, JMA from 17 February to 4 March 2005, in cooperation with the Ministry of Land, Infrastructure and Transport (MLIT) and Japan Weather Association (JWA).

The seminar, attended by four meteorologists from Cambodia, Laos, Micronesia and the Philippines, aimed



Participants with JMA director-general Koichi Nagasaka (third from left).

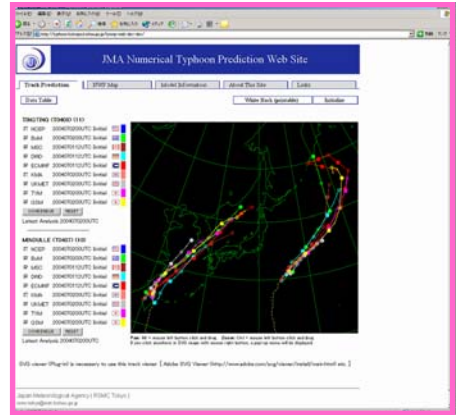
to share the latest knowledge and techniques on typhoon motoring and forecasting and to exchange views on the improvement of typhoon warning operation between forecasters from the National Meteorological and Hydrological Services (NMHSs) in the western North Pacific region. The participants discussed typhoon analysis and forecasting and visited relevant organizations responsible for disaster prevention and preparedness including a local government,

broadcast company and electric power company.

Web site on numerical typhoon prediction launched

The RSMC Tokyo-Typhoon Center officially launched a web site on Numerical Typhoon Prediction (NTP) on October 1, 2004, which provides NMHSs of tropical cyclone track prediction by major NWP centers for a better tropical cyclone forecasting and warning.

In response to the request of TC members at the 33rd TC session, JMA set up a preliminary website in September 2002. After further improvements, the website started full operation on October 1, 2004 in cooperation with 8 NWP centers; BOM (Australia), MSC (Canada), DWD (Germany), ECMWF, KMA



Track predictions of typhoon MINDULLE (0407) and TING-TING (0408) at 00UTC, 2 July 2004 on NTP website.

(Republic of Korea), NCEP (USA), UKMO (UK) and JMA.

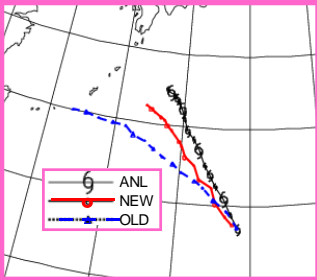
In addition to forecast data, the NTP web site has several useful functions such as deriving ensemble mean data from any combination of the predictions. It is also expected to help TC members improve disaster prevention related to tropical cyclones.

JMA global analysis and forecast system improved

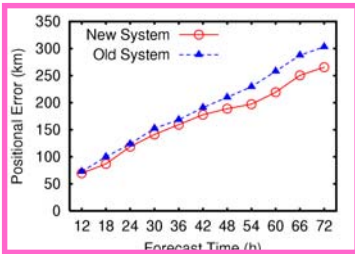
JMA upgraded the operational global analysis and forecast system in February 2005. A four-dimensional variational (4D-Var) method was introduced into the global data assimilation system in place of the previous 3D-Var method. Two kinds of typhoon bogusing methods are adopted in the new system. For the analysis in the assimilation cycle, bogus profiles are embedded in the first guess fields.

In the analysis for preparing initial conditions of forecasts, pseudo observational data are assimilated around a typhoon together with other observational data. Furthermore, a vertically conservative semi-Lagrangian advection scheme with horizontal resolution of TL319 was introduced into the Global Spectral Model (GSM).

For the evaluation of the performance of the new system, data assimilation and forecast experiments were conducted in January and August 2004. The results showed remarkable improvements in prediction of tracks and center positions particularly at the later stage of the forecast time.



Predicted tracks of T0416 (CHABA) for analyzed best track (ANL), new system (NEW) and old system (OLD). The track predicted by the old system shows southwestward error.

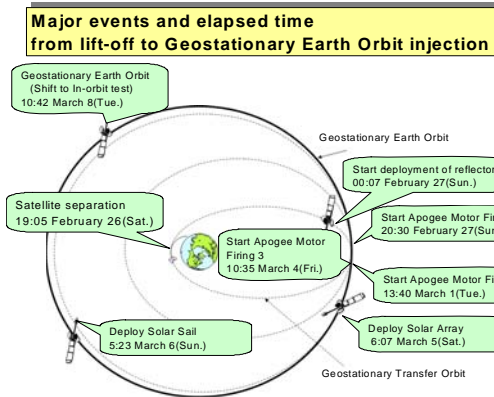


Mean positional error for eight typhoons in August 2004 by new system (circle) and by old system (triangle). The mean positional error is reduced by about 40 km in 60-hour forecasts.

MTSAT-1R launched

The MTSAT-1R, successor to GMS-5, was launched into space on 26 February 2005, after separating successfully from the H-2A rocket 45 minutes after lift-off at the Tanegashima Space Center.

The first test images in visible and infrared channels were obtained on 24 March. MTSAT-1R is expected to be fully operational in June 2005 after completing the in-orbit test.



Added information on the satellite can be secured from the Office of Meteorological Satellite Planning, Japan Meteorological Agency, with website at: http://www.jma.go.jp/JMA_HP/jma/jma-eng/satellite/index.html

Typhoon operational forecasting training at RSMC Tokyo-Typhoon Center

Two women forecasters from Hong Kong and Malaysia completed the Typhoon Operational Forecasting Training at RSMC Tokyo from 28 July to 6 August 2004. The on-the-job training focused on tropical cyclone analysis and forecasting using archived tropical cyclone data.

Another pair of forecasters from Macao and Singapore are set to undergo training on 20-29 July 2005.

The training has been conducted annually by JMA at RSMC Tokyo since 2001 based on an agreement with the Typhoon Committee. The objective of the training is to improve tropical cyclone analysis and forecasting abilities of forecasters from TC members.



On-the-job training at RSMC Tokyo Typhoon Center

MACAO

Commemoration of WMD 2005



SMG director Fong Soi Kun gives WMD remarks.

physical Bureau of Macao (SMG) SAR commemorated the 2005 World Meteorological Day promoting the theme for this year, "Weather, Climate, Water and Sustainable Development."

A Mobile Web Weather Service was launched in answer to the growing popularity of intellectual mobile phone and Personal Digital Assistant (PDA) and increase demand for people to access meteorological information on the web using these tools. With the new service, one could access, anytime, anywhere, with mobile phone and PDA the web site (<http://mobile.smg.gov.mo>) for vital weather information.



Mobile phones

project lecture for high school students in order to promote knowledge of general science on meteorology and geophysics, from 23 February to 29 March 2005. Topics included Climate Change, Earthquake and its Effect, Tropical Cyclone, Knowing Rainstorm, and Air Pollution and Health.

The lectures came in the heels of the catastrophic tsunami in the Indian Ocean on 26 December which arose global attention on natural disasters.

A ceremony launching of the publication "MMGB Collected Papers

The Meteorological and Geo-

The SMG also conducted a

(Vol.1, English Version) --- Asia Summer Monsoon and Mesoscale Numerical Simulation,” edited by SMG and published by the China Meteorological Press, was held on March 14. The publication was the result of research work of SMG staff and may strengthen exchange of experience between professionals from the area.

The first part of the publication focused on the study of “Summer Monsoon in Asia”, the second part on “Meso-scale Numerical Modelling,” while the third part consisted of extended abstracts of papers on miscellaneous topics that had presented in various regional and international seminars or conferences.



MMGB Collected Papers (Vol. 1)

Int'l Workshop on Tropical Cyclone Landfall Processes

The first meeting of the WMO International Workshop on Tropical Cyclone Landfall Processes (TCLP) was held in Macao, China, on 21-25 March 2005 which brought together researchers and forecasters for discussion on forecasting needs and scientific issues related to tropical cyclone landfall.

The meeting was led by TCLP director Prof. Lianshou Chen, who is also the chairman of CAS Working Group on Tropical Meteorology Research (WGTRM), and co-director Prof. Russell Elsberry, also the Rapporteur on Tropical Cyclones in WGTRM.

The objectives of the TCLP workshop were to assess the state-of-the-art of forecasting, impacts, and research; and develop a plan or initiative to help improve tropical cyclone landfall forecasts and warnings.

The presentations at the workshop were from the tropical meteorology research community, forecasting organizations, and risk assessment community and included: (1) TC landfall forecast status and needs; (2) Impacts of TC landfall; (3) Structure/intensity change observations including field programs and modeling; and (4) Opportunities and planning for the future. In addition to verbal presentations, a poster session provided opportunities for discussion during the meeting.

The participants recommended four project proposals: (1) Model Inter-comparison for Prediction of



Participants in Int'l. Workshop on Tropical Cyclone Landfall Processes

Tropical Cyclone Landfall that would apply advanced, high-resolution models of the type presented at the workshop using special observational sets from the field experiments, (2) Project on East Asian (tentatively proposed to be the Philippines) International Program for a Forecast Demonstration Project on Tropical Cyclone Landfall that would involve international cooperation in terms of new observational systems, advanced numerical model (including hydrological models) guidance, advanced forecaster workstations and training, and a societal impacts demonstration, (3) East Asia Tropical Cyclone Advanced Forecast Guidance Project that would include a targeted observation field experiment, an advanced data assimilation technique, and a combination of ensemble prediction systems from multiple countries, and (4) Pacific THORPEX Regional Campaign on Extra tropical Transition Linked with the International Polar Year in 2008, which would include model inter comparisons, adaptive observing strategies, and data assimilation that would lead to new conceptual models and forecast/warning products for extra tropical transition

MALAYSIA

Kuala Lumpur hosts workshop on risk management and impact assessment of typhoon-related disasters

The Workshop on Risk Management towards Millennium Development Goals and Socio-Economic Impact

Assessment of Typhoon-related Disasters was held in Kuala Lumpur, Malaysia, from 5 to 9 September 2005. The workshop was jointly organized by the Typhoon Committee Secretariat and the Department of Irrigation and Drainage of Malaysia in cooperation with ESCAP; the Ministry of Construction and Transportation (MOCT) and Institute of Construction Technology (KICT) of Korea; and the Ministry of Land, Infrastructure and Transport (MLIT) and Infrastructure Development Institute (IDI) of Japan.



Participants in Kuala Lumpur workshop.

The workshop aimed to share information on the assessment of socio-economic impact of typhoon disasters and risk management towards development goals in new millennium, and on improvement of the framework for living with risk, including institutional mechanisms and practices for a safer world.

The participants reviewed the progress in the development of flood hazard maps and the establishment of flash flood and sediment disaster forecasting and warnings systems in pilot areas of interested members. Priority needs in boosting the use of multi-hazard early warning systems were also identified in line with the need for an early tsunami warning system in the region and for a more effective mobilization of resources for the Committee's activities.

The workshop recommended to support the participation of representatives of TC members at the 4th World Water Forum to be held in Mexico City, Mexico (16-22 March 2006), including organization of a session under the theme "Coping with Risks" or "Integrated Water Resources Management."

THAILAND

TMD marks 63rd year

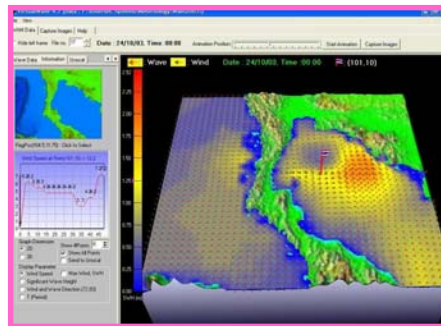
The Thai Meteorological Department (TMD) commemorated its 63rd anniversary with the holding of its first academic seminar on 23 June 2005 attended by 150 staffs and viewed on the Internet for those on duty throughout the country.

TMD deputy director-general Chalermchai Eg-Kantrong, in his opening message, emphasized the significance of academic research as a crucial factor for the Department's continuous progress.



C. Eg-Kantrong

The seminar presented 19 academic research topics, including three subjects relevant to typhoons. "Virtual Wave: an Algorithm for Virtualization of Ocean Wave Forecast in the Gulf of Thailand" was presented by Dr. Wattana Kanbua



Slide presentation of the topic on virtual wave.

which demonstrated how virtual ocean waves could be simulated from wind-wave spectrum as well as the effect of the 10 meters wind field over ocean surface to reflect the statistical characteristics of the real ocean. They looked so real that they could be widely used in the Virtual Reality applications.

In Dr. Kanbua's "Wave Hindcast by Using Parametric Model and Neural Network Model", three parametric models (RBT, SMB, TMA) and one neural network had been used to produce wave height and wave period once the bottom topography of the Gulf of Thailand, the waves data, and the winds data were input. It was found that among 4 models, the neural network model gave the lowest error suitable in warning system in both navigation and coastal engineering.

Mr. Sompol Kumpuangdee's

"Preparedness Plan for Natural Disasters in Chantaburi Province" presented an attempt to establish advanced public warnings on natural disasters (particularly for downhill overflows, mudslides, flash floods, and riverbank overflows) carried out since the huge losses from a downhill overflow on July 30, 1999. This measure, based on the integration between rainfall data bank and the knowledge of local topography as well as the discharge rates within the rain-fed areas, will help save lives and properties.

The academic seminar which was



S. Kumpuangdee

extended for two days, may likely be offered free to staffs of other concerned government agencies, college students and the public to join in 2006. Interested meteorological researchers from other members of the Typhoon Committee may also present their works at the academic seminar in the future.

REPUBLIC OF KOREA

Oceanic Meteorological Observation Complex in Yellow Sea starts operation

The Oceanic Meteorological Observation Complex site on Bukgyegyryelbi-Do (island), located in the western extremity of Korean peninsula, has been put to full operation in April 2005.



Location and view of the site

The unmanned observation site, construction of which started in 2003, is equipped with various meteorological instruments such as Automatic Oceanic Observation System (AOOS), Wave Radar and PM_{10} . In addition, a wind profiler will be installed in 2006.

Receiving real-time data from the site through satellite telecommunications (Vsat-8), of the Korea Meteorological Administration (KMA) is able to detect severe weather conditions from the West at earliest time possible. In particular, the Yellow Sea observation system

is expected to enhance KMA's forecasting capability on dust/sand storms from China.



View of observation instruments (clockwise), wave radar, wind profiler, PM_{10} and AOOS.

The Seo-san weather station which is the nearest office in Chung-nam province is in charge of maintenance of the site and monitoring real-time data traffic through remote monitoring system.



Observation data from each instrument (AOOS, Wave Radar, and PM_{10})

KMA's Cray X1E supercomputer to be installed



Cray X1E in KIDC

The KMA has purchased Cray X1E as the second supercomputer to replace the old NEC SX-5/28M2. The first phase of installment of the system was made in August 2004.

Cray X1E will be installed in Korea Internet Data Center (KIDC) to ensure more reliable maintenance and efficient operation.

Cray X1E super-computer combines the performance of traditional vector systems with the scalability of micro-processor-based architectures. High performance interconnect and

| System | Previous supercomputer | | New supercomputer | |
|---------------------------|------------------------|---------------|-------------------|-----------|
| | 1st Phase | 2nd Phase | 1st Phase | 2nd Phase |
| Year | 1999 * | 2000 * | 2004 * | 2005 * |
| Model | NEC SX-5/16A | NEC SX-5/28M2 | Cray X1 | Cray X1E |
| MSPs | 16 | 28 | 192 | 1024 |
| Peak performance (TFlops) | 0.128 | 0.224 | 2.4 | 18.5 |
| Max. Memory (GB) | 128 | 224 | 760 | 4032 |
| Disk Capacity (TB) | 2 | 3.8 | 56 | 75 |
| Number of nodes | 1 | 2 | 48 | 256 |

System configuration

memory subsystems allow Cray X1E system to scale from 16 to 8,192 processors. The maximum performance of this system was proved to be ninety times faster than previous system in operation since 1999. Cray X1E will be a great asset to help establish the infrastructure for digital weather forecasting service. At present, KMA is making a provision for digital weather forecast service in 2006.

CHINA

Regional Workshop on Effective Tropical Cyclone Warning

The Shanghai Meteorological Bureau hosted the Regional Workshop on Effective Tropical Cyclone Warning on 24-28 April 2005 with participants presenting scientific papers focusing on research institutional development of effective warning to mitigate tropical

cyclone-related disasters through close collaboration of the Typhoon Committee components on meteorology, hydrology, and disaster prevention and preparedness.

A companion seminar was also held on ensemble prediction system for RA II and RA V to provide theoretical framework on risk management amid uncertainty.

A special lecture on "Reducing risks through effective early

warnings of tropical cyclones - Lessons learnt from the Kobe World Conference on Disaster Reduction" was made by WMO representative Katsuhiko Abe.

Other topics presented were forecast accuracy and reliability; meteorological, hydrological and DPP perspectives; impact and vulnerability analyses; warning dissemination and presentation; and public education and promotion.

USA

Int'l workshop on flash flood forecasting set

The U.S. National Oceanic and Atmospheric Administration's National Weather Service, in collaboration with the World Meteorological Organization, is organizing an International Workshop on Flash Flood Forecasting, to be held in San Jose, Costa Rica, on 13-17 March 2006.

The workshop aims to provide information on the types of flash flood prediction capabilities available for application in flash flood-prone regions in developing countries. The main focus will be on how to deliver adequate lead-time and accuracy in forecasts to produce life and property saving actions to mitigate flash flood losses.

Invited resource persons, which include experts on flash flood forecasting from Asia, particularly, Japan, will present current methods and approaches, as well as emerging technologies in flash flood forecasting by different regions. Other topics include meteorological and hydrological methods of observation and forecasting tools in support of flash flood forecasting.

Participants will pinpoint the weak links in establishing end-to-end operational flash flood warning systems and how to fill these gaps. They will also identify steps to be taken to promote proven science and technology in developing countries.

Meanwhile, NOAA/NWS hosted the Workshop on Hurricane Forecasting and Warning, and Public Weather Services held in Miami, Florida, USA, on 11-23 April 2005. Five experts from the members of the Typhoon Commit-



37th SESSION PHOTOS (Top, from left) Mr Hu Yan Zhao, Shanghai Deputy-Mayor; Dr Qin Dahe, CMA Administrator; Mr Eisa H. Al-Majed, WMO representative; and Mr. Le-Huu Ti, ESCAP representative, deliver their opening remarks. (Above) Delegates to the thirty seventh session of TC pose for posterity.

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