The Department Retreat

The retreat of NTUAS was held on February 16, 2011 in Beitou. All faculty members attended the retreat to discuss the future direction of the department, including issues on both research and education. The meeting yielded important conclusions on the priorities in the near future. In research, the department will strengthen its collaboration with Academia Sinica and other meteorological research institutions, and will actively participate in major climate change research programs in Taiwan. In education, the department will encourage and support Ph.D. students to study abroad and attend international conferences. For undergraduate students, the emphasis will be on inspiring their interests in atmospheric sciences.

本系靜修會於2011年2月16日於北投舉行，全系教授共同參加針對教學、研究各方面之討論。會中達成有關本系未來發展之重要結論。在研究方面，本系將加強與中研院等國內氣象研究單位之合作，積極參與國內「氣候變遷」相關之重大研究計畫。在人才教育方面，本系將持續鼓勵及支持博士班學生出國進修及出席國際會議，同時注重啟發大學部學生對大氣科學的興趣，以培植未來大氣菁英人才。

Group photo of the department retreat on Feb 16, 2011.
Profs. Chun-Chieh Wu Started Second Term as NTUAS Chairman

Professor Chun-Chieh Wu was reappointed to a second three-year term as the NTUAS chairman, starting August 1, 2011.

吳俊傑教授三年系主任的任期於2011年7月31日屆滿，第二任期自2011年8月1日展開。

Faculty Awards

Prof. Chung-Hsiung Sui was awarded the title of Distinguished Professor by the National Taiwan University for his outstanding contributions in both teaching and research at NTU.

Prof. Chun-Chieh Wu was selected as one of the top 50 scientific achievers in Taiwan in the past 50 years by the National Science Council (NSC) in 2010. NSC presented Prof. Wu with this award in recognition of his typhoon research in the program titled, “National Priority Typhoon Research”, which made major breakthroughs in typhoon research and forecasting.

Prof. I-I Lin received the Outstanding Research Award from the National Science Council in 2010. Prof. Lin is one of the few researchers in Taiwan whose research interests span the topics of atmosphere, ocean and satellite remote sensing.

Prof. Yu-Heng Tseng received the “Dr. Shiah-Shen Huang Outstanding Paper Award” from the Meteorological Society of the Republic of China in 2010.

Jade Scholarship

The Jade Scholarship is funded by Prof. Ching-Yen Tsay, an ex-chairman of the department and the incumbent Chairman of the Industrial Technology Research Institute of Taiwan. It was established in 2010 with the first scholarship awarded to freshman Wei-Chen Kuo and junior Chiung-Yin Chang in 2011. The scholarship is open to NTUAS students who achieved full marks in the college entrance examination.
Retirements of Prof. Chung-Ming Liu, Prof. Ching-Chi Wu and Ms. Mei-Li Chang

Professor Chung-Ming Liu and Associate Professor Ching-Chi Wu retired from NTUAS at the end of July 2011.

Prof. Liu graduated from National Central University in 1977 and obtained his Ph.D. from University of Utah in 1982. He returned to Taiwan and joined the faculty of NTUAS in 1985. He was promoted to Professor in 1989, served as director of Global Change Research Center in NTU during 1993-1998 and 2004-2010. Prof. Liu’s research focused on climate change, atmospheric chemistry, and atmospheric radiation.

He delivered two general education classes: Introduction to Global Change and Introduction to Climate Change, both of which always attracted a full house of students. He is exceptionally adept at passing on knowledge in ways that are both interesting and easy to understand.

Prof. Wu joined the Department as a Teaching Assistant during 1974-1983. He went to the U.S.A. for graduate study in 1983 and obtained his Ph.D. from Purdue University in 1987. Afterwards he returned to NTUAS as an Associate Professor.

Prof. Wu has dedicated himself to one of his lifelong passions – teaching. He was an instructor of Atmospheric Thermodynamics and Boundary Layer Meteorology and also served as an adjunct faculty at the Center for Teacher Education under the Provost’s Office of Academic Affairs at NTU. Throughout the past 34 years, he taught diligently and has been a source of inspiration to his many students, earning their respect and affection. He has also authored several high school text books in geoscience.

Ms. Mei-Li Chang retired from the NTUAS on August 1, 2011. Ms. Chang had served as a staff in the department for more than forty years. She had dedicated herself to administrative support for the entire faculty.

The department wishes Prof. Liu, Prof. Wu and Ms. Chang the best and all happiness in their retirements.

本系柳中明教授及吳清吉副教授於2011年7月底榮退。

柳中明教授1977年畢業於中央大學地球物理研究所，隨後赴美獲得猶他大學博士學位，並於1985年至本系擔任教職。柳教授專精於全球變遷、大氣化學及大氣輻射等領域，開設氣候變遷之道識課程。工作期間曾兩度擔任臺大全球變遷研究中心主任。

吳清吉副教授原於1974-1983年間擔任本系助教暨講師，1983年時出國進修，於1987年獲得普渡大學博士文憑後，重返本系擔任教職，於大學部開設大氣熱力學，研究所開設邊界層氣象學。吳副教授在本系任教30多年，化育英才無數，更擔任臺大地球科學教育學程講師，培育多位優秀的中學老師。

本系資深職員張美麗小姐於2011年8月退休，同仁皆深感不捨。張小姐於本系服務逾四十年，對系上行政事務貢獻良多。

Group photo of the retirement party for Prof. Ching-Chi Wu.
News

Prof. Huang-Hsiung Hsu Accepted a New Position at Research Center for Environmental Change of Academia Sinica

Professor Huang-Hsiung Hsu accepted a new position at the Research Center for Environmental Change of Academia Sinica starting August 2011.

He received his Bachelor of Science from NTU and received his Ph.D. from University of Washington in 1986. During 1987-1989, he worked as a postdoctoral fellow in the Department of Meteorology, University of Reading. He returned to the NTUAS and served as Associate Professor starting 1989. He was promoted to Professor in 1992, and served as the Department Chairman from 2002-2005. Prof. Hsu is a dedicated teacher and researcher, with specialty in atmospheric circulation and large-scale dynamics. The courses he taught at both undergraduate and graduate levels include Earth Environment System, Climatology, Global Atmospheric Circulation, and Climate Diagnostics.

Prof. Hsu continues his affiliation at NTUAS as a joint Professor. The department is deeply indebted to Prof. Hsu for his excellent contributions while serving on the regular faculty at NTU, and looks forward to continued collaborations with him in both teaching and research programs.

The Departmental Library to close

The departmental library was closed in August, 2011 to vacate the space for a new laboratory and a new computer room. This closed an important chapter of the department history as the library has been a part of the department since very early days. The entire collection of books was moved to the NTU library. Periodicals remain in the department in Room C309, the new periodical and discussion room.

因系上空間重新規劃安排，本系歷史悠久之系圖書室將整併為新的研究室及資訊教室，館內藏書全部回歸至臺大總圖書館集中管理，期刊則放在新成立之C309「期刊及討論室」。
Exhibition on “Aiming High for a Low-Carbon Taiwan”

The “Aiming High for a Low-Carbon Taiwan” exhibition, sponsored by the National Science Council and organized by NTUAS and Southern Taiwan Science and Technology University, opened on March 12, 2011 and concluded on April 24, 2011 at the National Chiang Kai-Shek Memorial Hall. The exhibition attracted over 60,000 visitors.

This event included exhibitions organized by the low-carbon energy technology industry and high school teachers and students. Approaches using digital technological art were incorporated to enhance the audiences’ sensory involvements. The objective was to inspire responsive actions and to encourage the public to take actions to reduce carbon emissions.


More than 200 individuals interested in climate change and low carbon technologies were recruited and trained by NTUAS as assistants in the exhibition. These volunteers provided essential support that made the exhibition possible. It is hoped that through the exhibition, more people can realize the importance of saving energy and reducing carbon emissions, and put them into practices in their daily life.

By the end of the exhibition, over 60,000 visitors had attended.

Group photo of the closing ceremony. Dr. Gwo-Dong Chen, the director of Department of Science Education, National Science Council, standing fifth from left.
Study-Abroad Program

Through the study-abroad program of NTU College of Science, the department encourages undergraduate students to participate in collaborative activities with overseas academic institutions. Junior Miss Chiung-Yin Chang took the opportunity and visited the University of California, Berkeley in early July 2011. During her month-long stay in Prof. John Chiang’s Climate Dynamics Lab., working on a small project that explores the possibility of geo-engineering the climate. To test the hypothesis, they conducted experiments on a computerized global climate model. Her job consisted of four stages: literature review, source code modification, running the model, and analyzing the outputs. “Finishing all these within one month was kind of hurry, but I really enjoyed the challenges.” said Chiung-Yin. Such a special experience in a foreign country is a wonderful adventure for students. The department will seek more opportunities for undergraduates and encourage them to integrate knowledge from different subfields in order to develop more insights into atmospheric sciences.

Another activity is cruise training. A group of 20 people, including 4 scientists and 4 engineers from the US and Taiwan, 10 NTUAS undergraduate students, 1 NSYSU graduate student, and a Navy observer, participated in an 11-day research cruise on board of R/V Roger Revelle between 25 July and 4 August 2011. This sea going experiment, led by Dr. Ren-Chieh Lien at APL, University of Washington was one part of a joint project between US IWISE DRI (Internal Waves in Straits Experiment Directed Research Initiative) and the Taiwan ITOP program funded by the National Science Council. A unique 800-m long towed CTD array, designed and built at APL/UW, was used for the first time in the ocean to measure the details of hydrographic fields in the Luzon Strait where strong internal tides, nonlinear internal waves, and sea state conditions for navigational guidance, (5) monitoring weather, (6) helping deploy and recover towed CTD array, (7) logging time and sea state conditions for navigational guidance, (5) monitoring weather, (6) helping deploy and recover towed CTD array, (7) logging time and

Ten undergraduate students from NTUAS participated in the entire sea going experiment, from the loading of towed CTD array on July 23rd till the offloading of towed CTD array on August 4th. They helped set up the CTD sensors, build CTD winch, and secure on-deck and in-lab gears before the sail. During the cruise, they served two 12-hr watches with one Watch Captain and one Vice-Captain. Their duties included (1) monitoring ocean depths using the Multibeam sensor and cable tension of towed CTD array, (2) monitoring realtime hydrographic observations and identifying interesting internal wave signals, (3) monitoring marine radar back scattering strength for internal solitary wave signal, (4) monitoring weather, (5) monitoring marine radar back scattering strength for internal solitary wave signal, (4) monitoring weather, (5) monitoring marine radar back scattering strength for internal solitary wave signal, (4) monitoring weather, and mode-2 nonlinear internal waves were observed repeatedly during the cruise. Vertical overturning (turbulence) of order of 100 m and salinity anomaly of 0.3-0.5 psu were found in hydraulic jumps. Further analysis is needed to better understand the dynamics of these small scale features.

The primary scientific objectives of this cruise are to (1) measure nonlinear internal waves in Babuyan Channel (southern Luzon Strait), (2) measure lee waves behind sills, and (3) quantify internal tidal energy and energy flux in the southern Luzon Strait. Wave trains were observed with isopycnal displacement s of ~20 m. Internal tides with vertical displacements of ~100 m and horizontal velocity amplitude of ~1 m/s were observed. Complex small scale features including hydraulic jumps and mode-2 nonlinear internal waves were observed repeatedly during the cruise. Vertical overturning (turbulence) of order of 100 m and salinity anomaly of 0.3-0.5 psu were found in hydraulic jumps. Further analysis is needed to better understand the dynamics of these small scale features.

2011 Year, the系積極拓展和國外學術單位合作機會。7月初，大學部張瓊尹同學到加州大學柏克萊分校進行為期一個月的實習。7月25日至8月14日，由美國華盛頓大學連仁杰教授，帶領其專精於研究海洋之工作團隊及本系大學部10位學生，搭乘ROGER REVELLE號於南中國海進行研究實習活動，透過此難得的密集訓練，讓學生們學到一次寶貴的經驗。
The Global Monsoon System Book

The WMO-sponsored book “The Global Monsoon System: Research and Forecast, 2nd edition” was published by World Scientific Publishing Company in April 2011. The book was edited by Prof. Chih-Pei Chang with five co-editors: Prof. Yihui Ding of National Climate Center of China, Prof. Richard Johnson of Colorado State Univ., Prof. N-C Gabriel Lau of Princeton University and GFDL, Prof. Bin Wang of University of Hawaii, and Prof. Tetsuzo Yasunari of Nagoya University. The 608-page book consists of 34 chapters by 90 experts who were invited by WWRP and WCRP to join the project. The chapters review the observational, modeling, theoretical and field research on all scales of monsoons, from heavy rainfall to climate change and include land and ocean interactions. The regional monsoon chapters cover the monsoon of South Asia, East Asia, Maritime Continent, Australia, Africa, and North and South America. The chapter coauthors include NTUAS Professors Chun-Chieh Wu (typhoons in West Pacific monsoon trough, with Prof. Pat Harr of the Naval Postgraduate School), Huang-Hsiung Hsu (East Asian summer monsoon, with Prof. Tianjun Zhou of the Chinese Academy of Sciences and Prof. Jun Masumoto of Tokyo Metropolitan University), and Ben Jou (mesoscale field experiment, with Dr. Wen-Chau Lee of U.S. National Center for Atmospheric Research and Prof. Richard Johnson of Colorado State University).

Prof. Chang is a Distinguished Professor of the Naval Postgraduate School, who currently conducts research as the National Science Council Chair at NTUAS. He was reappointed by WMO in 2011 to serve as the Chair of the Monsoon Panel of the Working Group on Tropical Meteorology Research.

由WMO世界天氣研究計劃(WWRP)和世界氣候研究計劃(WCRP)共同籌劃的「全球季風系統：研究與預報（第二版）」一書於今年四月由世界圖書科技公司出版，書為張智北教授主編，其他編者為中國國家氣候中心丁一匯，科羅拉多州大學R. Johnson，普林斯頓大學劉雅章，夏威夷大學王斌，及名古屋大學T. Yasunari五位教授，全書608頁由世界各國90位專家執筆，共有34章討論季風各尺度的觀測、理論、模式、和實驗的研究及預報問題。書中有專文討論南亞、東亞、海洋大陸、澳洲、非洲、北美洲、和南美洲的區域季風，並包括劇烈降雨、氣候變遷、青藏高原、海洋作用等。本系吳俊傑、許晃雄、周仲島三位教授分別應邀擔任西太平海洋季風區颱風、東亞夏季季風、及中尺度實驗觀測三章的共同作者。張智北教授為美國海軍研究學院特聘教授，現任本系國科會講座，於今年連任WMO熱帶氣象研究小組季風委員會主席。
Visit of Fujian Meteorological Bureau Delegation

On Feb 21, 2011, the delegation of Fujian Meteorological Bureau made a three-hour visit to the department. The delegates were welcomed by Prof. Chun-Chieh Wu at the foyer of the department Building.

Visit of Long-An Elementary School Students

On April 1, 2011, more than forty students from the gifted class of Long-An elementary school visited the department. Department chairman Prof. Chun-Chieh Wu welcomed the group and provided a briefing about NTUAS. After the briefing, the group visited the field observational platform to watch a demonstration of the release of a sounding balloon. They then returned to the classroom and observed laboratory experiments conducted by NTUAS teaching assistants. The experiments including tornado formation and model cloud formation in a bottle were conducted to stimulate the students’ curiosity in atmospheric sciences.

Visit of Taipei Chenggong High School Students

On June 3, 2011, NTUAS hosted a visit from 50 students of the Taipei Chenggong High School. The visitors were warmly welcome by Prof. Jen-Ping Chen who gave a briefing on NTUAS. After the briefing, Prof. Jen-Ping Chen and Prof. Huang-Hsiung Hsu led a discussion forum by sharing their research and life experiences and entertained questions from the high school visitors. The visitors then proceeded to the field observational platform to see a demonstration of releasing sounding balloons. At the end of the visit, the group presented a letter of appreciation to NTUAS.
Visit of Geoscience Research Club by Students from Four High Schools

On July 21, 2011, about thirty-five high school students from Taipei First Girls High School, Taipei Municipal Jianguo High School, Taipei Municipal Zhongshan Girls High School and Wanfang High School visited the department. The students are all members of the Geoscience research club who were mostly freshman with deep interest and high enthusiasm in geoscience. The group was welcome by the chairman, Prof. Chun-Chieh Wu who gave a briefing about NTUAS before the group visited the field observational platform where NTUAS students demonstrated measurement instruments.

Visit from Nature Note Program of National Education Radio

2011年7月21日，由四所高中所組成的地球科學社至系上參觀。活動開始由吳俊傑主任進行系所介紹，隨後至觀測坪參觀。

Visits of Leading Scientists

Dr. Wayne Higgins, Director of Climate Prediction Center/NOAA (fifth from right), visited the department on March 30, 2011 and delivered a seminar entitled "Evaluation studies of CFSR".
Prof. Robert Houze of University of Washington (sixth from right) visited the department on April 15, 2011 and delivered a seminar entitled “The Tropical Cloud Population”.

Dr. N-C Gabriel Lau of Princeton University and Geophysical Fluid Dynamics Laboratory (fourth from right) visited the department on May 20, 2011 and delivered a seminar entitled “The Role of Air-Sea Interaction in the Evolution of the Asian Summer Monsoons: Climatological Aspects and Interannual Variability”.

Prof. Huei-Ping Huang of Arizona State University (fourth from right) and Prof. Joshua Fu of University of Tennessee (third from right) visited the department on May 26, 2011. Prof. Huang delivered a seminar entitled "Seasonal climate prediction for South America using a thermodynamically coupled model". Prof. Fu delivered a seminar entitled “Downscaling of Global Chemistry and Climate Predictions: Regional Analysis and Local Impacts”.

Dr. Frank D. Marks of Hurricane Research Division, NOAA/AOML (third from right) visited the department on June 28, 2011 and delivered a seminar entitled "HFIP Development and NOAA Advancements in Tropical Cyclone Research". Prof. Robert Fovell of UCLA (first from right) was also visiting.
Prof. Fei-Fei Jin of University of Hawaii (fourth from left), Prof. Wei-Chyung Wang of State University of New York at Albany (fifth from left), and Prof. Pao-Kuan Wang of University of Wisconsin-Madison (sixth from left) visited the department on August 4, 2011. Prof. Jin delivered a seminar entitled "Dynamics for ENSO Regimes"; Prof. Wang delivered a seminar entitled "Cross-tropopause transport of water vapor by deep convective storms and its implication".

Dr. Ren-Chieh Lien of University of Washington (center) visited the department on July 19, 2011 for the research cruise on board of R/V Roger Revelle between July 25 and August 4, 2011.

Dr. Shih-Yu Lee of Research Center for Environmental Changes, Academia Sinica (fifth from left) visited the department on October 25, 2011 and delivered a seminar entitled "Northern Hemisphere influence on Southern Hemisphere winds".

Prof. Norden Huang of National Central University (fourth from left) visited the department on October 18, 2011 and delivered a seminar entitled "Interdecadal Climate Variability".
Alumni Reunion of the 1986 Class

On August 14, 2011, many of the alumni from the 1986 class attended a reunion at the department organized by Prof. Chun-Chieh Wu. At the beginning, Prof. Wu showed a film consisted of many old photos from the college days and the previous gathering in 1996. Afterwards each of the attendees made brief introductions to let others know how they are doing now. It was a joyful meeting where everyone recalled the wonderful memory more than 20 years ago at NTU.

AOGS 8th Annual Meeting, August 8-12, 2011

The Asia Oceania Geosciences Society (AOGS) 8th Annual Meeting was held at the Taipei International Convention Centre (TICC) from 8 to 12 August, 2011. Over 1600 participants from 44 countries participated in the conference. Dr. Lou-Chuang Lee, Minister of the National Science Council made the Welcome address, and Prof. Harsh Gupta, the president of AOGS, delivered the Opening address. These were followed by the Axford Lectures, which were delivered by Nobel Laureate in Physics Dr. Samuel Chao Chung Ting of the European Organization for Nuclear Research and Dr. Yun-Tai Chen of the Institute of Geophysics, China Earthquake Administration.

On 9-12 August, a number of international scientists were invited to deliver lectures in the conference. In the field of Atmospheric Sciences, two distinguished lectures were given, respectively, by Dr. Kuo-Nan Liou of University of California, Los Angeles, who introduced the Regional Climate Change: The Role of Light-Absorbing Aerosols and Snow-Albedo Feedback, and the other by Prof. Michael T. Montgomery of the Naval Postgraduate School, who gave a lecture on the Paradigms for Tropical-Cyclone Intensification. Among the other invited lecturers were Prof. Yuriy Kuleshov of Australian Bureau of Meteorology; Prof. Zeyu Chen of Chinese Academy of Sciences; Dr. Wei-Kuo Tao of NASA Goddard Space Flight Center; Prof. Wansuo Duan of Chinese Academy of Sciences; Dr. Zhiyong Meng of Peking University; Dr. Wei-Kuo Tao of NASA Goddard Space Flight Center; Prof. Hyo Choi of Gangneung-Wonju National University; Dr. Shuji Shimizu of Japan Aerospace Exploration Agency; Dr. Hsin-I Chang of University of Arizona; Prof. Yukari Takayabu of University of Tokyo; Dr. Takeshi Enomoto of Japan Agency for Marine-Earth Science and Technology; Dr. Akiyoshi Wada of Meteorological Research Institute; Prof. Il-Ju Moon of Cheju National University; Prof. Udaysankar Nair of University of Alabama in Huntsville; Dr. Melinda Peng of Naval Research Laboratory - Monterey; Prof. Yuqing Wang of University of Hawaii; Prof. Johnny Chan of City University of Hong Kong.
What Controls the Transition from Shallow to Deep Convection?

One of the major characteristics of summer-time convective systems over land is their strong response to diurnal forcing. Typically the response is conceptualized as a progression through distinct phases, including the development of the dry convective boundary layer, the emergence of shallow cumulus clouds, the transition from shallow to deep cumulus clouds, the meso-scale organizations of deep cumulus clouds and (at times) the subsequent evolution of such systems as they draw moist air from low-level jets riding over stable boundary layers. It is difficult for large-scale models to capture this diurnal cycle because it depends almost entirely on sub-grid scale parameterizations which uncertainly represent the underlying physical processes. Model studies (Bechtold et al. 2004; Guichard et al. 2004) show that the surface precipitation generally develops a couple hours earlier in the morning in single column model (SCM) representations of the diurnal cycle over land as compared to observations, as the SCM representations consistently bypass the shallow cumulus phase. These studies concluded that the most challenging part of modeling the diurnal cycle over land is to represent the development of shallow cumulus and the transition toward deep convection. In this study, we endeavor to understand this transition and the particular role of shallow convection.

To extract the essence of the transition from shallow to deep convection, we use an idealized framework to highlight the role of two control parameters, the free tropospheric lapse rate of potential temperature and the relative humidity (Fig.1). The systematic dependence of the development of convection on the potential temperature lapse rate and the humidity shows that the concept of a convective transition is a meaningful one (Fig.2). A transition time can be defined to evaluate the relationship of the transition time to the evolution of the thermodynamic state of the different simulations.

The results show that the transition time depends on both the moisture and the potential temperature lapse rate, but in a way that previous
ideas do not fully encapsulate. The shallow convection persists until the environment of the shallow cumulus layer becomes unstable to the average cloud properties as illustrated by the cartoon in Fig. 3. This permits the transition time to be predicted given a consideration of the stability of the shallow cumulus layer. By analyzing the time evolution of the lapse rate of virtual potential temperature of the environment and that of the clouds in the shallow cumulus layer, we show that the transition coincides with the time when the lapse rate of the clouds becomes larger than that of the environment, suggesting that transition happens when shallow clouds become, on average, buoyant (Wu et al. 2009).

We then construct a simple model which shows that the mean cloud properties can be usefully related to the mean environmental profiles. The geometric mixing model which assumes that the clouds consist of a uniformly distributed mixing fraction of air between the surface and the observed level in the Paluch diagram (Fig. 4) is used to represent the mean cloud properties. The overall behavior of the simple mixing model suggests that the time evolution of the cloud lapse rate in the shallow cumulus layer can be represented given knowledge of the surface and environmental properties. The results also suggest the importance of the shallow cumulus in preconditioning the environment for the development of the deep convection. While our experiments are constructed under conditions over the Amazon, the ideas we invoke are general and may be applicable to other circumstances (i.e. over the ocean or over drier land). Those ideas are readily testable with data. Thus, in addition to developing our understanding of how the representation of shallow convection affects the environmental stability, future work should focus on evaluating the extent to which processes we articulate here may be relevant to the diurnal evolution of clouds.

References


Guey-Chi Shih, Assistant Professor, graduated from this department in 1998, then from this institute in 2000, and finally received the PhD degree in Atmospheric Sciences from the University of California, Los Angeles in 2008. After that, he worked at the Center for Multi-Scale Modeling of Atmospheric Processes (CMMAP) as a postdoctoral researcher, and returned to the department in 2011 as an associate professor. His research areas include the study of multi-scale atmospheric processes, cloud physics and simulations, atmospheric boundary layer processes, tropical climate, and climate variability.
2011 Doctors’ & Masters’ These

2011 Master’s Theses

Mu-Hao Hsu: A Study of Concentric Typhoons and Southwesterly Monsoon

Ie-Feng Fu: Influence of Land Cover on Local Mineral Dust Emission over Taiwan

Chia-Wei Wang: The Observation and Model Simulation of Valley Boundary Layer

Yuan-Ming Cheng*: The Role of Boundary Layer Dynamical Processes in Tropical Cyclone Intensity

Nai-Hsin Lin: On the 2010 Anomalous Europe Blocking High and Wave Activity

Chia-Chung Hsu: Use the Method of PV Inversion to Discuss Effect of TC on Large-scale Circulation

Yi-Chun Liao: Characteristics of Precipitation in Tropical Oceans

Han-Ching Chen: Southern Hemisphere Extra-tropical Forcing on ENSO - Observation and Model Comparisons

I-Kuan Hu*: The Inhomogeneous Component of the Indian Ocean Basin Mode

Pei-Yu Chueh: The Influence of 11 Year Solar Cycles on the North Pacific Climate Dynamics

Chih-Hong Chen: The Subsurface Ocean Thermal Structure of Three Phases of ENSO in the North Pacific and the Associated Impact on Typhoon-Induced Cold Wake

Tze-Chieh Hsia: The Impact of Cold Oceanic Eddies on Typhoon Intensity Evolution in the Western North Pacific Ocean

*Recipients of the Dean’s Award

Shin-Gan Chen*: Characteristics and Validation of the Targeted Observations for Tropical Cyclones — ADSSV and ETKF

2011 碩士論文

Mu-Hao Hsu: 雙眼牆颱風與西南季風探討

Ie-Feng Fu: 臺灣土地型態對本土揚塵之影響

Chia-Wei Wang: 山谷邊界層之觀測與模擬

Yuan-Ming Cheng*: 邊界層動力過程對颱風強度之影響

Nai-Hsin Lin: 2010 東歐夏季熱浪的診斷與模擬

Chia-Chung Hsu: 利用位渦反演的方法探討熱帶氣旋活動對大尺度環流的影響

Yi-Chun Liao: 熱帶海洋的降雨特徵

Han-Ching Chen: 南半球中高緯度對於聖嬰的影響

I-Kuan Hu*: 印度洋海盆模之非均勻分量

Pei-Yu Chueh: 太陽 11 年週期變化對大氣及海洋動力的影響

Chih-Hong Chen: 北太平洋上層熱力結構之聖嬰現象三種不同相位變化與其對颱風引起的冷渦之影響探討

Tze-Chieh Hsia: 西北太平洋海洋性冷渦對颱風強度變化的影響

*院長獎得主

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News
- Tribute to Prof. Wen-Shung Kau
- Profs. I-I Lin and Yu-Heng Tseng received promotions
- Profs. Chun-Chieh Wu and I-I Lin received major awards
- NTUAS students visited National Central University
- Prof. Chih-Pei Chang named Chair and Co-Chief Editor of Asia-Pacific Weather and Climate book series
- AMS 29th Conference on Hurricanes and Tropical Meteorology
- Prof. Michael R. Hoffmann, Caltech, offered invited course on Environmental Organic Chemistry
- Visits of Profs. Dennis Hartmann and Ben-Kui Tan
- Department alumni reunion
- Visit of Chinese Meteorological Society
- World Geography Overseas Fieldwork 2010 in Swaziland

- Workshop on Cross-Strait Cooperative Typhoon and Heavy Rain Research Project
- Visits of Leading Tropical Cyclone Scientists
- APEC Research Center for Typhoon and Society
- Prof. Chung-Hsiung Sui joins the Department

Meeting Highlights
- International Workshop on Typhoon Morakot (2009), March 25-26, 2010
- 10th National Workshop on Atmospheric Sciences for Graduate Students, June 14, 2010

Research Highlight
- Tropical Intraseasonal Oscillations and Convection-Coupled Waves in Western North Pacific during Summer