

Newsletter

National Taiwan University
Department of Atmospheric Sciences

No. 9 December 2016

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2016 Doctors' & Masters' Theses

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Retirement of Prof. Tai-Jen George Chen

The retirement ceremony for Prof. Tai-Jen George Chen was held at International Conference Hall of CoS on January 7th, 2016. Prof. Chen has contributed decades of his academic career to the field of meteorology in Taiwan. After graduating from the NTU Department of Geography – Weather Group in 1968, he continued his studies at the State University of New York in the United States. After earning his PhD in 1975, he returned to his alma mater and served until today. He has published more than 300 papers in both national and international atmospheric science journals and conferences, and is a world renowned expert in East Asian rainy season (Plum Rain).



Prof. I-I Lin, the hostess of the ceremony, arranged a series of activities. Many special guests and alumni attended the ceremony to congratulate Prof. Chen, including Prof. Li Peng (A professor at NTU when Prof. Chen was studying there). It was a full house. The ceremony started with a video made by Mr. Jhih-Fan Chen titled "Looking back at 40 years of teaching". This was followed by welcome speeches from NTU president Pan-Chyr Yang, Dr. Shiuh-Tzung Liu, Dean of NTU College of Science, and Prof. Lo Ching-Hua. Special guest Distinguished Prof. Lance F. Bosart (Department of Atmospheric and Environmental Sciences, University at Albany/SUNY) who was Prof. Chen's advisor at SUNY, also made a congratulatory video which was played during the ceremony.

There were many meaningful gifts prepared at the ceremony, including aged liquor from Pu-Li, poems written in calligraphy (content written by Dean Prof. Pao-Kuan Wang and titled by Prof. Hung-Chi Kuo and Dean Wang), and a card signed by the entire faculty, staff, and students. The refreshments were also specially prepared to feature Prof. Chen's hometown, his hobbies, and New York.

Finally, Prof. Tai-Jen Chen shared his journey of the past 52 years - how he applied to the Department of Geography – Weather Group, his college days, joining the military, studying overseas, and returning to NTU to serve as a researcher. At the conclusion of his speech, Prof. Chen explained the tune and conception of the school song. He spoke about environment and weather, ideals and spirit, reminding everyone of the NTU spirit to never give up, and led everyone in singing the NTU school song in acapella.

陳泰然教授榮退典禮於 2016 年 1 月 7 日在臺大思亮館國際會議廳舉行。

陳泰然教授為臺灣氣象領域無私奉獻數十年頭的學術生涯。民國 57 年畢業於臺大地理系氣象組後，赴美國紐約州立大學深造，民國 64 年取得博士學位後即返回母校服務迄今，並在研究工作上貢獻豐沛的學術能量，發表 300 餘篇論文於國內外大氣科學期刊與研討會，為國際著名的梅雨專家。

林依依系主任擔任典禮主持人，精心安排一系列活動。當天有非常多的系友及特別來賓蒞臨會場祝賀，包含彭立教授(當時陳泰然教授於臺大就學時的教授)，現場相當踴躍，座無虛席。典禮開始時播放由系友陳至凡先生製作的"教學 40 年影片回顧"影片展開序幕。並邀請臺灣大學楊泮池校長、理學院劉緒宗院長、國家實驗研究院羅清華院長等貴賓上台致詞，及播放特別佳賓 Distinguished Prof. Lance F. Bosart (Department of Atmospheric and Environmental Sciences, University at Albany/SUNY) 錄製的影片祝賀，他是陳泰然教授於紐約念書時的指導教授。

典禮中準備豐富且具有意義的紀念禮物:埔里老酒、書法詩詞(由郭鴻基教授及王寶貫主任(中研院環境變遷中心)提字，王主任所篆)、及全體員工師生祝賀卡片。茶會更別出心裁準備陳泰然教授的故鄉、興趣及紐約作為主題的點心。

最後陳泰然教授分享他怎麼進入臺大地理系氣象組的過程、校園生活、當兵、出國留學和回來臺大教學研究服務這 52 年來的故事。分享的尾聲，陳泰然教授解釋校歌的曲調和歌詞意境，談環境也談氣象，談理想也談精神，意寓臺大人百折不饒的精神，並帶領大家一同清唱臺灣大學校歌。

教學 40 年影片回顧-系友陳至凡先生製作

<https://www.youtube.com/watch?v=wPS8AAG90mM>

陳泰然教授榮退典禮剪輯影片-科教中心製作

<https://www.youtube.com/watch?v=y8UvxsDU6tI>

Awards

Prof. Tai-Jen Chen received the Professor Emeritus in 2016.

Prof. Chun-Chieh Wu was elected as a Fellow of American Meteorological Society in 2017.

Prof. Min-Hui Lo received the NTU Outstanding Teaching Award in 2016.

Prof. Hui-Ming Hung received the NTU Teaching Award in 2016.

Prof. Wei-Ting Chen received the NTU Teaching Award in 2016.

Adjunct Prof. Der-Rong Wu received the NTU Teaching Award in 2016.

PhD student Hsiao-Ching Huang received the AOGS2016 Best Student Poster. She was elected Outstanding College Youth of National Taiwan University in 2016.

Undergraduate student Ming-Rui Tseng received the College Student Research Creativity Award in 2016.

陳泰然教授榮聘為本校名譽教授。

吳俊傑教授獲選 2017 年美國氣象學會會士。

羅敏輝教授獲 104 學年度教學傑出獎。

洪惠敏教授獲 104 學年度教學優良獎。

陳維婷教授獲 104 學年度教學優良獎。

吳德榮兼任教授獲 104 學年度教學優良獎。

博士班黃筱晴獲 2016 年中國北京亞洲大洋洲地球科學學會 2016 年度學術大會『優秀學生海報』殊榮，為本屆各領域獲獎學生中唯一台灣學生。並於 10 月獲選國立臺灣大學 105 學年度優秀青年。

學士班曾敏端同學獲 104 年度大專學生研究計畫研究創作獎，指導教授為陳正平教授。

Personnel Changes

Prof. Hung-Chi Kuo assumed the Vice President for Academic Affairs starting Feb. 1st, 2016.

Prof. Chun-Chieh Wu starts to serve as the Director General of the Department of Natural Sciences and Sustainable Development, Ministry of Science and Technology in Sept. 2016.

郭鴻基教授自 2016 年 2 月 1 日起擔任臺灣大學教務長職位。

吳俊傑教授自 2016 年 9 月 1 日起借調科技部，榮任自然司司長。

The Department Retreat

All faculty members attended the Retreat to discuss the future direction of the department, including issues on both research and education. In 2016, the Retreat was held on Sept. 24th.

靜修會為全系教授共同參加，針對本系未來的發展，包含教學、研究各方面的討論。



A group photo of the department retreat on Sept. 24th, 2016.

Retirement of Prof. Ming-Chin Wu

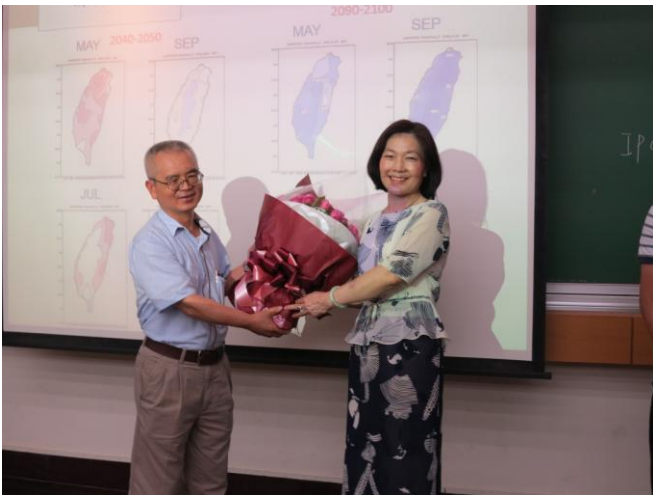
At the semester's last Weather and Climate class on June 16th, 2016, Department Chair I-I Lin hosted the farewell party for Prof. Ming-Chin Wu. At the party were the entire department faculty and student body, and Prof. Wu's wife, brother, and sister-in-law.

Prof. Wu enrolled as a student in the Department of Geography, Geography Division (不確定怎麼翻) in 1969 and transferred to the Meteorology Division a year later. In the past 30 years he's taught at our department. His major courses were Climatology, Statistics and Atmospheric Science (Weather Statistics), Weather and Climate (general education), etc. His research interests are Climate Dynamics, Hydrometeorology, regional climate simulation and forecast, and the impact of climate change on regional climate and water resources.

The department greatly appreciates the valuable contributions of Prof. Wu and hopes he will enjoy a happy retirement.

2016年6月16日下午「天氣與氣候」的最後一堂課一結束時，林依依系主任帶領全系師生，並邀請師母、吳明進老師的弟弟及弟媳到場，一同給吳老師一場溫馨的歡送會。

吳明進老師於1969年考進臺大地理系地理組，一年後轉到氣象組；吳老師在本系任教30年以來，主要教授課程為氣候學、統計與大氣科學（氣象統計學）、天氣與氣候（通識課）等，研究興趣為氣候動力學、水文氣象學、區域氣候模擬與預報、全球變遷對於區域氣候及水資源的衝擊等。



Retirement of Former NTUAS Department Chair Prof. Ching-Yen Tsay

Former NTUAS department chair Prof. Ching-Yen Tsay has retired from Industrial Technology Research Institute. Colleagues from the field of Atmospheric Science gathered at the international conference room in Central Weather Bureau on May 27th for his retirement party. The party was jointly held by Meteorological Society of



Group photo of the retirement party.

the Republic of China、Central Weather Bureau、NTUAS、Taiwan Typhoon and Flood Research Institute and Dept. of Atmospheric Sciences, NCU.

NTU AS 60th Book

NTU AS celebrated its 60th anniversary in May, 2015 with a series of events (published in the 2015 NTU AS newsletter No. 8). Looking back on the past 60 years, our alumni have made great contributions to advance the field of atmospheric science domestically and internationally. Many alumni also excelled in other fields, for example, former Minister of Foreign Affairs Mr. Tang-Shan Chen and the famous singer Shu-Chun Huang. Department Chair I-I Lin was therefore inspired to create a department book.

The department book (60th anniversary book) is a collection of the stories of 45 alumni from the first 30 classes that graduated prior to 1988. It is scheduled to be published in June, 2017. We anticipate including more alumni in future editions, and hope that the stories of our department can be passed down for generations to come.

2015年5月臺大大氣科學系舉辦60周年系慶系列活動(已刊載大氣科學系2015年Newsletter No.8)，林依依系主任想到系友們在過去60年來，對國內外氣象科學領域都有許多的貢獻，亦有一些系友在其他領域發光發熱，如前外交部長陳唐山學長和著名歌手黃舒駿學長等，而催生了系書的構想。

系書收錄了大氣科學系第1屆到第30屆(畢業於1988年之前)的45位系友，預計於2017年6月出版，未來一定還會有更多的系友能共襄盛舉，期盼大氣科學系的故事能一直流傳下去。



A group photo with alumni Shu-Chun Huang (center) on August 5th, 2015



An alumni group photo in front of the Central Weather Bureau on August 17th, 2015

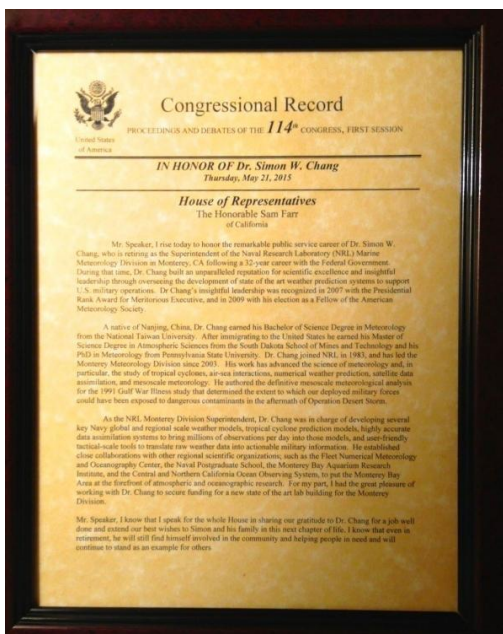


A group photo with Prof. Ching-Yen Tsay (center) on July 28th, 2015

The USA 114th Congressional Record – Superintendent of the Naval Research Laboratory Marine Meteorology Division

Alumnus Dr. Simon W. Chang has served in the United States Naval Research Laboratory for 32 years and demonstrated scientific excellence and insightful leadership. He was recognized in 2007 with the Presidential Rank Award for Meritorious Senior Executive. In 2009, he was chosen as a Fellow in the American Meteorological Society. On March 10th, 2015, Dr. Simon W. Chang was recognized by Congressman Sam Farr in the 114th Congressional Record for establishing the Marine Meteorology Center and his contribution to the country.

系友張偉正博士於美國海軍研究實驗室 (Naval Research Laboratory) 效力 32 年間，展現非凡的領導能力及優越的科學能力。於 2007 年榮獲美國總統級特殊獎 (2007 Presidential Rank Award for Meritorious Senior Executive)，2009 年獲選美國氣象學會會士 (Fellow, American Meteorological Society)。並於 2015 年 3 月 10 日，由 Sam Farr 眾議員在美國 114 屆國會中 (Congressional Record 114th)，表揚張偉正博士對海洋氣象中心的興建及對國家的貢獻。



114th Congressional Record.

NTU 1986 30th Reunion

On June 5th, 2016, NTU held the 30-year reunion of Class of 1986 at the NTU Sports Center with a series of events titled “六五是夜，三十精彩才開始”。Festivities included “A trip down memory lane”, “The joy of reunion”, “This is our night”, “Red wine and memories”, “Aspiration, Nature, and Passing on” and “See you at 40”. Prof. Chun-Chieh Wu served as convener for the Atmospheric Science Class of 1986 and invited his 17 classmates (alumni), Prof. Ching-Yen Tsai, Prof. Tai-Jen Chen, and Yu-Chen Lee, the convener of the Class of 1987 to celebrate this occasion. It was a harmonious evening and many good memories were shared. It was as if they had traveled back in time. Everyone has the fondest memories and love for their alma mater and the Atmospheric Science department.

2016 年 6 月 5 日，臺灣大學於綜合體育館舉辦 1986 級三十重聚，安排“六五是夜，三十精彩才開始”一系列活動，包含“懷舊憶往”、“重聚喜悅”、“這一夜，我們的精彩”、“紅酒話當年”、“初心、關懷、傳承”及“相約四十”。擔任 1986 級大氣系召集人的吳俊傑老師，力邀 17 位同班同學 (系友)，加上蔡清彥老師、陳泰然老師和 1 位 1987 級下一屆召集人李玉偵學妹一同共襄盛舉。會場和樂融融，師生們重溫舊夢，彷彿回到 30 年前大學的光陰。大家對臺大及母系的深厚珍貴情誼，歷久彌新。



A group photo of the 30th reunion celebrations.

The NTU Azalea Festival

The NTU Azalea Festival is held in March every year, which includes department exhibitions, student club exhibitions and performances attracting high school students from all over Taiwan. NTUAS also set up a booth, providing an introduction of our department courses and information of atmospheric sciences.

臺灣大學每年3月都會舉辦為期兩天的杜鵑花節。活動內容包括學系博覽會、社團聯展以及表演活動，吸引臺灣各地高中生前來參觀，認識臺大各個科系，作為升學時的參考。



The NTU Azalea Festival was held on March 12th to 13th, 2016.

Commencement

The Commencement of NTU took place in the morning of June 5th 2016, along with the dean's award ceremony. In the afternoon, a hooding ceremony for all new graduates of NTUAS was held in the department, with family and friends sharing this cheerful moment.

臺灣大學畢業典禮在6月於臺大體育館舉辦。當天下午，系上進行畢業典禮，由系主任撥穗，

Parent-Teacher Conference

NTU holds the Parent-Teacher Conference in August every year. NTUAS invited freshmen and their parents to visit the department and attend the department orientation.

臺灣大學於每年9月開學前，舉辦校級新生家長日。大氣系並邀請家長們了解大氣系系況、課程及環境，並進行交流活動。



Acting director Prof. Chun-Chieh Wu (吳俊傑) made a presentation on Parent-Teacher Conference Day on Sept. 4th, 2016.



The students graduating from NTUAS in 2016 include 35 Bachelors, 13 Masters and 3 Ph.Ds.

並邀請畢業班導師及畢業生親友共同參與。

2016 Study-Abroad Program

Under the reimbursement of the College of Science's international exchange scholarship, the department encourages its students to attend international conferences.

PhD student Han-Ching Chen attended the 2016 Ocean Sciences Meeting in the United States from 2/21 to 2/26. The meeting focused on discussing multi-scale dynamic processes in deep sea and global climate change. Chen presented his research topic - The Role of Reversed Equatorial Zonal Transport in Terminating an ENSO Event, which discusses the oceanic circulation. Although ENSO mostly happens around the equator on the Pacific Ocean, it deeply influences the weather and climate across the globe and may even cause serious natural disasters, making it an important issue for meteorological organizations across the world. In addition to presenting his research, Chen also had the opportunity to meet and talk with students and faculty in the field (余進益老師、曾于恒老師、劉秦玉老師等), and has learned a lot.

Undergraduate student Min- Duan Tzeng and Prof. Po-Hsiung Lin attended the 7th International Conference on Fog, Fog Collection, and Dew in Poland from 7/24-7/29. The conference included topics such as observation results of fog and dew from different regions, the impact of fog and dew on climate, and issues on numerical simulation and satellite observation. Through oral, poster presentation and conversing with conference attendees, Tzeng learned the value of his research applications - solving water shortage problems in draught regions by collecting fog and dew.

PhD student Hsiao-Ching Huang attended the 13th Annual Meeting of the Asia Oceania Geosciences Society (AOGS) in Beijing, China

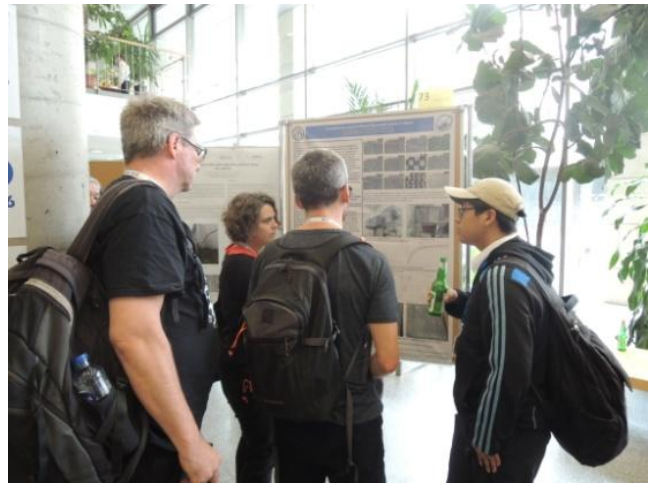
from 7/31-8/5. She presented her research, "Hurricane-Ocean interaction related to ENSO in the Eastern North Pacific Ocean". The meeting included the following 9 issues: AS (Atmospheric Sciences), BG (Biogeosciences), HS (Hydrological Sciences), IG (Interdisciplinary Geosciences), OS (Ocean Sciences), PS (Planetary Sciences), ST (Solar and Terrestrial Sciences), SE (Solid Earth Sciences), and SS (Special Sessions). Through her presentation at AOGS, Huang was able to share her research with faculty from around the world as well as students from China, Hong Kong, and Indonesia. These interactions provided her with valuable suggestions that will give her future research some new and diverse perspectives.

在理學院國際交流獎學金補助下，本系積極鼓勵學生參加國際會議。

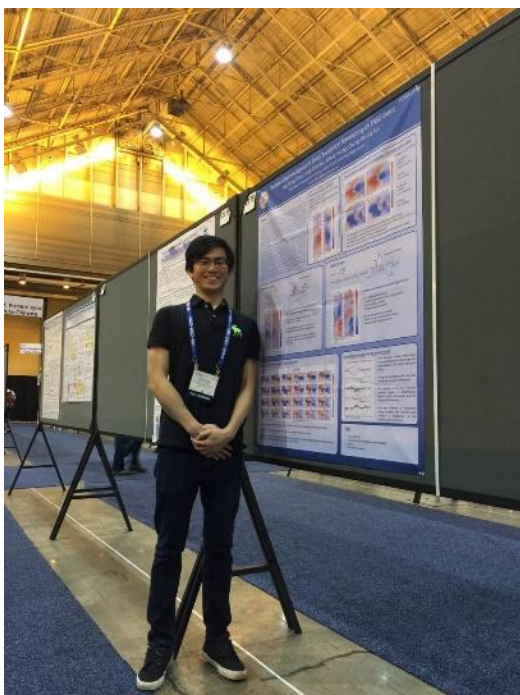
博士班陳漢卿研究生於2月21日至2月26日參加美國"2016 Ocean Sciences Meeting"，會議主要為討論深海多尺度動力過程與全球變暖化議題。陳漢卿博士生以"The Role of Reversed Equatorial Zonal Transport in Terminating an ENSO Event"為題目在會議中報告，內容為大洋環流的探討。聖嬰現象雖然主要發生在赤道太平洋附近，但卻對全球各地的天氣或氣候都會造成影響，甚至會引發嚴重的自然災難，因此深受各國氣象單位的重視。除了會議上的報告之外，也與多名學生和相關領域老師（余進益老師、曾于恒老師、劉秦玉老師等）討論，受獲良多。

學士班曾敏端學生與林博雄老師於7月24日至29日前往波蘭參加第七屆國際霧、露水及霧水收集研討會。研討會內容除了霧與露水在不同地區的觀測結果，還有霧與露水對氣候的影響，以及數值模擬與衛星觀測等議題。曾敏端同學透過口頭報告與海報交流，體會到其研究之應用價值，利用補霧及補露的方式解決乾旱地區缺水等問題。

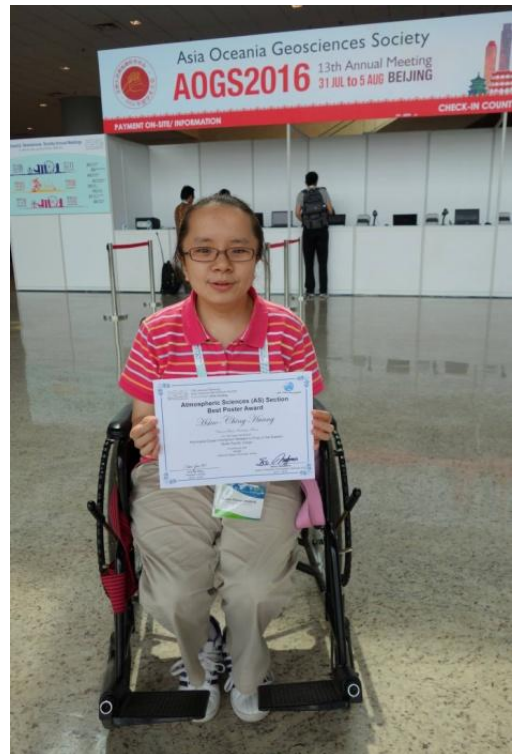
博士班黃筱晴研究生於7月31日至8月5日參加中國北京亞洲大洋洲地球科學學會2016年度學術大會”Hurricane-Ocean interaction related to ENSO in the Eastern North Pacific Ocean”(AOGS)。此次會議包含AS(Atmospheric Sciences)、BG(Biogeosciences)、HS(Hydrological Sciences)、IG(Interdisciplinary Geosciences)、OS(Ocean Sciences)、PS(Planetary Sciences)、ST(Solar & Terrestrial Sciences)、SE(Solid Earth Sciences)、SS(Special Sessions)9個議題。黃筱晴博士生藉由這次參加海報展的經驗，和許多學者(中央大學余嘉裕教授、台灣大學游政谷教授、吳俊傑教授、黃彥婷教授、彰師大涂建翊教授、澳洲雪梨大學Prof. Kevin K. W. Cheung、夏威夷大學王斌教授、金飛飛教授、李天明教授等)及來自不同國家的學生(大陸、香港、印尼等)討論自己近期的研究，獲得許多寶貴的建議，也為之後研究方向增添了更多元化的視角。



Undergraduate student Min- Duan Tzeng (right)



PhD student Han-Ching Chen



PhD student Hsiao-Ching Huang received the AOGS2016 Best Student Poster Award.

Visitors



Nanjing University of Information Science & Technology visited the department on Jan. 14th, 2016.



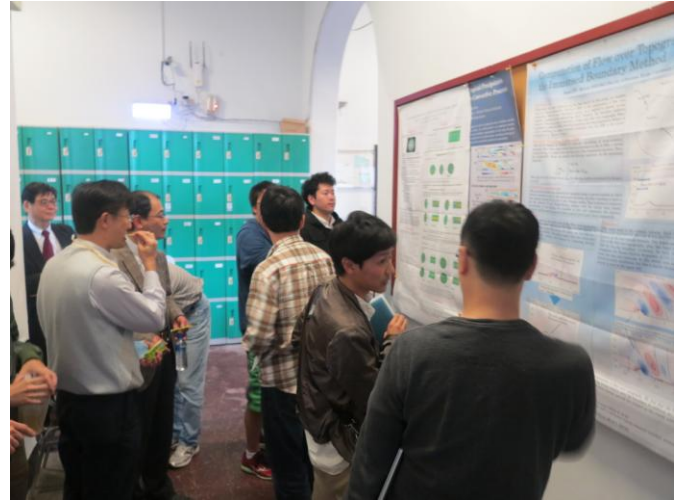
Dr. Chung Hui Ya (莊慧亞) (middle) of NOAA visited the department on February 25th, 2016 and delivered a seminar titled “Recent and upcoming GFS and its product upgrades”.



Assistant Prof. Elizabeth A. Barnes (second of right) of Department of Atmospheric Science, Colorado State University visited the department on March 8th to 11th, 2016 and delivered a seminar titled “The music in the noise: quantifying atmospheric variability and change”.



Dr. Olivier Bousquet (second of left in first-row) of Météo-France and Dr. Soline Bielli of Centre National de Recherche Scientifique, France visited the department on March 17th, 2016. Dr. Olivier Bousquet delivered a seminar titled “Overview of Research Activities at Meteo-France's Tropical Cyclone Research Division” and Dr. Soline Bielli delivered a seminar titled “AROME: A new high resolution model for operational tropical cyclone forecasting”.



From 3/15-3/19, Prof. Shigeo Yoden of Kyoto University led a team of 8 people including associate Prof. Tetsuya Takemi, 2 PhD students, and 4 master's students to visit the department. This marks the 4th academic exchange between the two universities.

During the group's 5-day visit, NTUAS prof. Chun-Chieh Wu (also vice chair of the College of Science) planned and hosted a series of lectures and academic exchange activities. Many faculty members were invited to give English presentations on their respective research topics, including Prof. Chung-Hsin Tsui, Prof. Yen-Ting Huang, Prof. Chien-Ming Wu, and visiting scholars Dr. Olivier Bousquet and Dr. Soline Bielli. The graduate students from Kyoto University also gave oral and poster presentations to share their research with the faculty and students at NTUAS, giving them the opportunity to learn about different fields, research methods, and new perspectives.



Dr. Steven Goodman (middle) of NOAA visited the department on March 23rd, 2016 and delivered a seminar titled "Forecaster Demonstrations of the New Generation of Operational Satellites at the NOAA Testbeds and GOES-R Satellite Proving Ground".



Prof. Jui-Lin Li (李瑞麟) (second of left) of NASA and Dr. Eun-Soon Im (second of right) of SMART visited the department on March 25th, 2016. Prof. Jui-Lin Li delivered a seminar titled “Impacts of Precipitating Clouds Radiative Effects on the Land Surface Properties in Contemporary GCMs using CloudSat-CALIPSO Observations” and Dr. Eun-Soon Im delivered a seminar titled “A study on the impact of irrigation on regional climate using the MIT Regional Climate Model”.



Dr. Shih-Yan Lee (李世彥) (middle) of NOAA visited the department on March 31st, 2016 and delivered a seminar titled “Understanding Your Satellite Data”.



Prof. Bin Wang (王斌) of University of Hawaii, Prof. Eric Maloney of Colorado State University, Prof. Matthew Wheeler of BOM, Australia, Prof. Kunio Yoneyama of JAMSTEC, Japan, Prof. Wen Zhou (周文) of City of Univ. of Hong Kong and Prof. Song (楊崧) Yang of NRL visited the department on May 19th, 2016.



National Taichung Girl's Senior High School visited the department on May 28th, 2016.



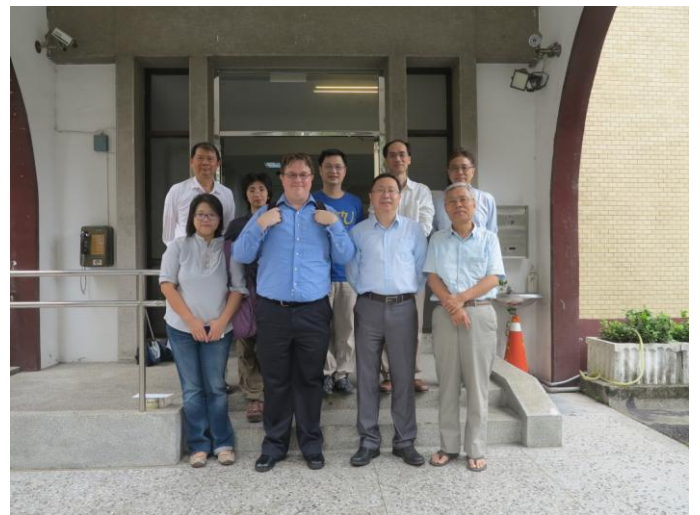
Taipei Municipal Jianguo High School Astronomy Club visited the department on Aug. 11th, 2016.



Group photo of Dr. Christine Chiu (邱瑞媛) (first from right) of University of Reading, UK, Prof. Otto Klemm and Mrs. Otto Kerstin visited department on Sept. 23rd, 2016.



Dr. Simon Chang (張偉正) of Outstanding Alumnus visited the department on Oct. 4th, 2016 and delivered a seminar titled “Forty Years of Learning-Using my own career as an example, to share the observation and experience of what can make the best of opportunities and fulfill your goals”.



Prof. Tim Li (李天明) of Univ. of Hawaii (second from right in first row) and Dr. Jeff Steward (second from left in first-row) of UCLA visited the department on Nov. 1st, 2016. Prof. Tim Li delivered a seminar titled “ENSO future projection and 2015 super El Nino formation processes”. Dr. Jeff Steward delivered a seminar titled “Predictability of tropical cyclogenesis: the role of convective parameterization, turbulence, and gravity waves in Hurricane Karl (2010)”.

United Nations Framework Convention on Climate Change, Conference of Parties

The United Nations Framework Convention on Climate Change (UNFCCC) holds its annual Conference of Parties (COP) at the end of each year. Last year, it was held in Paris, France, from November 30th to December 11th, 2015.

NTU AS Prof. Kuang-Jung Hsu attended this meeting, and witnessed an unusually harmonious process. Not only did the participating countries abandon their competitiveness, they unexpectedly came together to reach a consensus that was ambitious and visionary. The Paris Agreement is aimed at pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, and to reach global peaking of greenhouse gas emissions as soon as possible starting from the middle of this century. The Intended Nationally Determined Contributions (INDC) will replace the Kyoto Protocol and the reduction amount will be adjusted every 5 years. With the increase in frequency and severity of extreme weather, countries across the world have felt the impact of climate change, and many parties were keen on launching the Paris Agreement as soon as possible. After several European Union states ratified the agreement on October 5th, 2016, there were enough countries that had ratified the agreement for the agreement to enter into force. This was less than a year after the Agreement was produced. The agreement went into effect on November 4th, 2016. By December 7th, the number of countries that ratified reached 116, making the Paris Agreement the fastest international agreement to enter into force. COP22 was held in Marrakech, Morocco from November 7th to 18th, and the focus was on discussing how to set up the framework for the Paris Agreement.

聯合國所屬氣候變化綱要公約 (United Nations Framework Convention on Climate Change, UNFCCC) 每年在年底舉辦締約國大會 (Conference of Parties, COP)。第 21 屆於 2015 年 11 月 30 日到 12 月 11 日在地主國法國巴黎舉行。

臺大大氣科學系徐光蓉教授參與本次大會，COP21 會議的進行呈現難得一見的平和，所有參與國揚棄你爭我奪、爾詐我詐的鬥爭，達成超乎大家預期，具野心及前瞻性的共識。此次「巴黎協議」的目標為控制地球增溫不超過攝氏 1.5 度，並希望於本世紀中開始，人為二氧化碳排放量盡早達最高峰。以「國家自定預期貢獻 (Intended Nationally Determined Contributions, INDC)」取代京都議定書；每 5 年一期調整減量幅度。

隨著極端天氣發生頻率與強度持續增加，沒有一個國家無感受到氣候變遷帶來的衝擊，多數締約國樂見「巴黎協議」儘早開始正式運作。2016 年 10 月 5 日歐洲議會正式認可後，跨過了「巴黎協議」生效門檻，距協議產生不到 1 年，於 11 月 4 日正式生效，在 12 月 7 日達 116 國家認可，是有史以來生效最快的國際協定。並於 2016 年 11 月 7 日至 18 日在摩洛哥馬拉喀什舉行 COP22，主要討論如何建立「巴黎協議」該有的規範。



COP21 會議期間安排台灣與德國朝野國會議員交流

Forum of Peking University Day

National Taiwan University hosted the event Peking University Day on March 24th, 2016. NTU principal 楊泮池 and Peking University principal 林建華 were both invited and signed a renewing contract for the universities to collaborate and increase exchanges between the schools. More than a hundred faculty and students attended the event, creating a lively atmosphere.

The NTU-PKU forum, “Atmospheric environment (PM2.5) and water pollution – science and impact”, was planned by NTU AS Prof. Chun-Chieh Wu 吳俊傑 and Associate Dean of the College of Public Health Prof. 詹長權. Faculty and students from both universities were invited to present their research results and engage in discussion.

國立臺灣大學於 2016 年 3 月 24 日舉辦「臺大北京大學日」活動。校長楊泮池及北京大學校長林建華都受邀出席，續簽兩校雙學位合作協議，加強兩校更深的交流，現場百位師生到場氣氛熱烈。

兩校公共論壇以「大氣環境(PM2.5)與水污染-科學及影響」為題，由系上吳俊傑教授與公共衛生學院詹長權副院長共同籌劃，並邀請兩校教授及學生代表發表各自研究成果並進行討論。



A group photo of Prof. Jen-Ping Chen (left) and Prof. Tsung-Mei Fu (right) (NTU AS alumni, from Prof. J.-P. Chen's group before) at the forum of Peking University Day. It is a great pleasure for

北大日系列活動

公共論壇-大氣環境(PM2.5)與水污染-科學及影響

(論壇第一場)

主持人：臺大吳俊傑教授

與談人：北大賀燦飛教授、臺大詹長權教授

北大傅宗政教授、臺大陳正平教授

北大徐福留教授、臺大馬鴻文教授

北京大學物理學院大氣與海洋科學系 傅宗政教授

中國大陸 PM2.5 污染來源及解決途徑

臺灣大學大氣科學系

陳正平教授

臺灣與東亞空氣污染趨勢與衝擊

北京大學資源與環境學地理系

徐福留教授

水文變化與湖泊污染

臺灣大學環境工程學研究所所長

馬鴻文教授

水資源整合管理的交織問題

北京大學城市與環境學院副院長

賀燦飛教授

經濟發展與環境污染

臺灣大學公共衛生學院副院長

詹長權教授

跨界 PM2.5 污染問題的風險治理

(論壇第二場)

主持人：北大賀燦飛教授

與談人：北京大學學生代表

政府管理學院 15 級碩士

侯琳

城市與環境學院 14 級碩士

鄧安琪

城市與環境學院 14 級本科

彭思源

臺灣大學學生代表

大氣科學系碩一

甘禮安

環境工程學研究所博一

陳立衡

職業醫學與工業衛生研究所博一

錢建文

Decade of rising seas slowed by land soaking up extra water

抽取地下水影響海平面上升被高估

【『抽取地下水影響海平面上升被高估』研究，榮登《Nature Climate Change》期刊】

New measurements from a NASA satellite have allowed researchers to identify and quantify, for the first time, how climate-driven increases of liquid water storage on land have affected the rate of sea level rise. A new study shows that while ice sheets and glaciers continue to melt, changes in weather and climate over the past decade have caused Earth's continents to soak up and store an extra 3.2 trillion tons of water in soils, lakes and underground aquifers, temporarily slowing the rate of sea level rise by about 20 percent.

羅敏輝助理教授與美國航太總署哥達德太空研究所、新加坡國立大學、美國航太總署噴射推進實驗室、美國國家大氣研究中心 (NASA GISS, NUS, JPL, NCAR) 等科學家們的最新研究顯示，利用最新的大氣、陸地、海洋耦合氣候模式發現，由於過去在探討抽取地下水造成海平面上升的影響時，並未考慮抽取地下水所造成的陸地與大氣間的交互作用，因此可能高估了抽取地下水造成海平面的上升幅度。此研究成果發表在 2016 年 5 月份的自然氣候變遷期刊 (Nature Climate Change)。

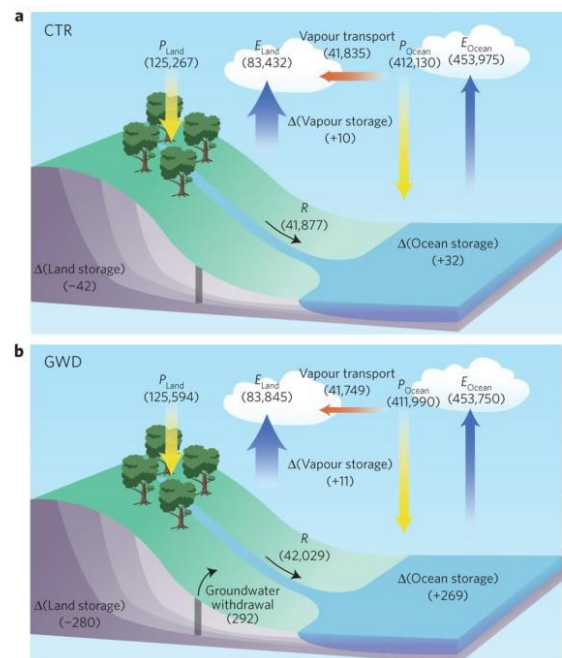
準確地預測海平面上升的幅度是非常重要的，因為海平面上升對於住在海岸附近以及在小島嶼的人構成相當大的威脅，特別是一些低窪地區。海平面上升的因素，包括冰蓋和冰川融化、熱膨脹，以及抽取地下水等，近年來的研究顯示，地下水抽取可能會是海平面上升相當重要的一個影響因子，因為全世界對地下水的依賴不斷地增加，在未來 50 年中，影響的幅度可能接近目前冰川和冰蓋的影響。然而，以往的研究，包括 IPCC 第五次評估報告，在估計地下水對海平面

上升的影響時，都有一個很大的假設是：「從地下蓄水層抽取的地下水幾乎全部(近 100%)會流到海洋」。但是我們利用了最先進的氣候模式，在考慮到陸地，海洋和大氣之間的反饋作用後發現，近 100%的假設可能是高估的，事實上約只有 80%的地下水抽取量會流至海洋。這項新的研究意味著，模式與目前觀測到的海平面上升之間的差距更大，也表示還有其他的不確定因素會影響海平面上升的幅度。

由於資料的缺乏，過去在估算海平面上升的各個影響因子時，無法將此陸地水文變化的因素考慮進來。此新發現除了修正過去在估計抽取地下水造成海平面上升的假設外，也提供科學界在計算海平面上升趨勢時一個不可或缺的資訊。另一方面，大部份的氣候模式由於缺乏完整的地下水與大氣相互作用的物理過程，尤其是人類活動（例如地下水抽取）引起的地下水水位的改變，因而無法合理地模擬地下水對於氣候的影響。因此此研究將改善既有氣候模式之不足，並對陸地水文與海洋交互作用的研究中提供新的進展。

[引用]

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