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### **EDUCATION**

2008/08 – 2013/06 Ph.D. Environmental Science and Engineering,  
California Institute of Technology, Pasadena, CA, US

2002/08 – 2006/06 B.S. Atmospheric Sciences,  
National Taiwan University, Taipei, Taiwan

### **EMPLOYMENT**

2017/11 – present Assistant Research Fellow RCEC, Academia Sinica, Taiwan

2016/03 – 2016/06 Post-doc Scholar RCEC, Academia Sinica, Taiwan

2013/09 – 2015/12 Post-doc Scholar Jet Propulsion Laboratory, NASA/Caltech

2008/08 – 2013/06 Graduate Research Assistant California Institute of Technology

2006 – 2007 Research Assistant Atmospheric Sciences, National Taiwan  
University

### **HONORS & AWARDS**

2013 – 2015 NASA Postdoc Fellowship (NASA Postdoctoral Program)

2011 NCAR Advanced Study Program Graduate Student Visitor Program 2011 Award

2007 Studying Abroad Scholarship, Ministry of Education, Taiwan

2006 Dean's Award in the College of Science, National Taiwan University, Taiwan

2003 – 2005 Presidential Award, National Taiwan University, Taiwan

### **RESEARCH INTERESTS**

- Analysis on air quality, atmospheric composition, and aerosols
- Aerosol-cloud-climate interactions

### **RESEARCH HIGHLIGHTS**

- **Analysis on air quality, atmospheric composition, and aerosols:** To acquire a better comprehension of aerosol emission source and air quality, and to improve our understanding

of the chemical and physical processes affecting the air quality, the following methods/analyses are carried out:

(a) Remote sensing: The satellite data from OMI, TROPOMI, and MODIS are analyzed to investigate the spatial-temporal variability of SO<sub>2</sub>, NO<sub>2</sub>, and aerosol properties over East Asia. Also, the relationship between the seasonal pattern of pollutants/aerosols and synoptic weather systems/meteorological conditions are studied. We further estimate the emission inventories from major pollution sources over Taiwan.

(b) Aircraft measurements: The field campaign “Effect of Megacities on the transport and transformation of pollutants on the Regional and Global scales over Asia (EMeRGe-Asia)”, led by University Bremen, and collaborated with Academia Sinica, aims to investigate the characters and influence of pollution plumes using aircraft research platform. The chemical compositions of pollutants were measured both during the research flights and from ground stations. By integrating the aircraft and ground-based measurements, this facilitates a more comprehensive analysis of the transport and chemistry of plumes from pollution sources over western Taiwan.

- **Aerosol-cloud interactions:** Multi-sensory satellite observations are applied to study the sensitivity of cloud properties to aerosol levels and large scale environmental conditions. In an earlier study, an unprecedented quantitative estimate of global aerosol–marine cloud radiative forcing and its associated uncertainty was quantified using multi-year A-Train satellite data (Chen et al., 2014). Also, the aerosol-cloud interactions under different mesoscale cloud structures and environments were investigated based on ship tracks observed from satellite and research flights (Chen et al., 2012; 2015). An ongoing work is to untangle the aerosol-cloud-meteorology interactions under different synoptic weather systems over East Asia.

#### PEER-REVIEWED PUBLICATIONS (\*: corresponding author)

11. **Chen, Y.-C.\***, J.-L. F. Li, W.-L. Lee, D. Diner, M. Garay, J. Jiang, Y.-H. Wang, J.-Y. Yu, O. Kalashnikova (2020), Evaluation of sea salt aerosols in climate systems: global climate modeling and observation-based analyses, *Environ. Res. Lett.*, 15, 034047, doi: 10.1088/1748-9326/ab751c.
10. Lin, C.-A., **Chen, Y.-C.\***, Liu, C.-Y., Chen, W.-T., Seinfeld, J. H., Chou, C. C.-K. (2019). Satellite–derived correlation of SO<sub>2</sub>, NO<sub>2</sub>, and aerosol optical depth with meteorological conditions over East Asia from 2005 to 2015, *Remote Sens.*, 2019, 11, 1738.
9. Christensen, M. W.\*, **Y.-C. Chen**, and G. L. Stephens, Aerosol indirect effect dictated by liquid clouds, 2016, *J. Geophys. Res. Atmos.*, 121, 14,636–14,650, doi:10.1002/2016JD025245.
8. Li, J.-L. F., Y.-H. Wang, T. Lee, D. Waliser, W.-L. Lee, J.-Y. Yu, **Y.-C. Chen**, E. Fetzer, and A. Hasson (2016), The impacts of precipitating cloud radiative effects on ocean surface evaporation,

precipitation, and ocean salinity in coupled GCM simulations, *J. Geophys. Res. Atmos.*, 121, doi:10.1002/2016JD024911.

7. Li, J.-L. F., W.-L. Lee, J.-Y. Yu, G. Hulley, E. Fetzer, **Y.-C. Chen**, and Y.-H. Wang (2016), The impacts of precipitating hydrometeors radiative effects on land surface temperature in contemporary GCMs using satellite observations, *J. Geophys. Res. Atmos.*, 120, doi:10.1002/2015JD023776.

6. **Chen, Y.-C.**, Christensen, M. W., Diner, J. D., and Garay, M. J. (2015), Aerosol-cloud interactions in ship tracks using Terra MODIS/MISR, *J. Geophys. Res. Atmos.*, 120, doi:10.1002/2014JD022736.

5. Jung, E., Albrecht, B. A., Jonsson, H. H., **Chen, Y.-C.**, Seinfeld, J. H., Sorooshian, A., Metcalf, A. R., Song, S., Fang, M., and Russell, L. M. (2015), Precipitation effects of giant cloud condensation nuclei artificially introduced into stratocumulus clouds, *Atmos. Chem. Phys.*, 15, 5645-5658, doi:10.5194/acp-15-5645-2015.

4. **Chen, Y.-C.**, Christensen, M. W., Stephens, G. L., and Seinfeld, J. H. (2014), Satellite-based estimate of global aerosol–cloud radiative forcing by marine warm clouds, *Nature Geoscience*, doi:10.1038/ngeo2214.

3. **Chen, Y.-C.**, Christensen, M. W., Xue, L., Sorooshian, A., Stephens, G. L., Rasmussen, R. M., and Seinfeld, J. H. (2012), Occurrence of lower cloud albedo in ship tracks, *Atmos. Chem. Phys.*, 12, 8223-8235, doi:10.5194/acp-12-8223-2012.

2. Russell, L. M., Sorooshian, A., Seinfeld, J. H., Albrecht, B. A., Nenes, A., Ahlm, L., **Chen, Y.-C.**, Coggon, M., Craven, J. S., Flagan, R. C., Frossard, A. A., Jonsson, H., Jung, E., Lin, J. J., Metcalf, A. R., Modini, R., Muelmenstaedt, J., Roberts, G. C., Shingler, T., Song, S., Wang, Z., and Wonaschuetz, A. (2012), Eastern Pacific Emitted Aerosol Cloud Experiment (E-PEACE), *B. Am. Meteorol. Soc.*, **94**, 709–729, doi: <http://dx.doi.org/10.1175/BAMS-D-12-00015.1>.

1. **Chen, Y.-C.**, Xue, L., Lebo, Z. J., Wang, H., Rasmussen, R. M., and Seinfeld, J. H. (2011), A comprehensive numerical study of aerosol-cloud-precipitation interactions in marine stratocumulus, *Atmos. Chem. Phys.*, 11, 9749-9769, doi:10.5194/acp-11-9749-2011.

#### **RECENT CONFERENCE PROCEEDING**

**Chen, Y.-C.**\*, Chang, C.-H., Tseng, W.-L. and Chen, W.-T. 2019: The relationship between aerosol optical depth and synoptic weather systems over East Asia, American Geophysical Union (AGU) fall meeting, 9–13 December, San Francisco, CA, US.