This is RCEC website cv template. Please follow the format as much as possible. No more than 5 pages.

## Meng-Yuan Chen (陳孟遠)

Research Center for Environmental Changes (RCEC), Academia Sinica
No. 128, Sec. 2, Academia Rd., Nankang, Taipei, Taiwan 115
Office Tel: +886-2-2787-5881
Email: morantchen@gate.sinica.edu.tw
Lab website link: www.rcec.edu.tw

### EDUCATION

2002/09 – 2008/06 Ph.D. Institute of Space Science, National Central University, Taiwan
1998/09 – 2000/06 M.S. Institute of Space Science, National Central University, Taiwan
1993/09 – 1998/06 B.A. Department of Physics, Soochow University, Taiwan

### EMPLOYMENT

2023/04 - present Postdoctoral Research Fellow RCEC, Academia Sinica, Taiwan
2021/08 - present Adjunct Assistant Professor College of General Studies, Yuan Ze University, Taiwan
2021/02 - 2023/04 Postdoctoral Research Fellow Department of Space Science and Engineering, National Central University, Taiwan
2020/03 - 2020/10 Postdoctoral Research Fellow Institute of Hydrological and Oceanic Sciences, National Central University, Taiwan
2019/02 - 2020/02 Appointed System Engineer Electronic Systems Research Division, National Chung-Shan Institute of Science and Technology, Taiwan
2016/02 - 2016/07 Adjunct Assistant Professor Department of Environmental Information and Engineering, Chung Cheng Institute of Technology, National Defense University, Taiwan
2011/12 - 2018/12 Associate Researcher Taiwan Typhoon and Flood Research Institute, National Applied Research Laboratories, Taiwan
2008/08 - 2011/07 Adjunct Assistant Professor Department of Communication Engineering, Asia Eastern University of Science and Technology, Taiwan
2008/07 - 2011/12 Postdoctoral Research Fellow Institute of Space Science, National Central University, Taiwan
2003/07 - 2008/06 System Engineer Institute of Space Science, National Central University, Taiwan
2002/03 - 2002/11 Antenna Engineer NBU RD4 Wireless Hardware Design Department, Mitac International Corporation, Taiwan

### HONORS & AWARDS

### PROFESSIONAL SERVICE

**This is RCEC website cv template. Please follow the format as much as possible. No more than 5 pages.**

➢

## RESEARCH INTEREST

My research lies in the field of atmospheric and oceanic remote sensing with ground-based radar. Especially for the application of wind profiling radar, Radar system, and its signal processing and simulation. I developed a technique for profiling radars to measure atmospheric wind fields when signals are contaminated by migrating birds. It exploited the idea of adaptive beamforming to suppress the interference from birds to provide accurate three-dimensional wind measurements using a spaced antenna system. I also investigated the beam broadening effect on Doppler spectrum of wind profiler with theoretical derivation and numerical simulation. An analytic expression of the beam broadening spectral width was further proposed and that is applicable in general.

## RESEARCH HIGHLIGHTS

1. **Application of adaptive beamforming to mitigate contamination on wind profiler**
   A novel technique was developed for profiling radars to measure atmospheric wind fields when signals are contaminated by migrating birds. It exploited the idea of adaptive beamforming to suppress the interference from birds to provide accurate three-dimensional wind measurements using a spaced antenna system. Numerical simulations were implemented to investigate the performance and the limitation of the proposed technique. The feasibility of atmospheric wind measurements was further demonstrated by using the experimental data. Wind measurements from the full correlation analysis (FCA) and postset beam steering (PBS) were also provided for comparisons. During the period when a single bird was present in the radar beam, the proposed technique produces wind estimates that were consistent with atmospheric wind field prior to the entry of the bird, while both FCA and PBS wind estimates were biased.
   Reference: Chen et al., 2007

2. **Beam broadening effect on Doppler spectral width of wind profiler**
   The beam broadening effect on Doppler spectrum was investigated with theoretical derivation and numerical simulation. It was found that vertical wind may cause a beam broadening spectrum not in exact Gaussian shape. Moreover, the azimuth angle variation of the beam broadening spectral width in the presence of vertical wind was more significant than that in the absence of the vertical wind. The widths of the beam broadening spectra for oblique beams pointing in the opposite directions were different. Further, wind shear effect on the azimuth anisotropy of the beam broadening spectral width was also studied. In the context of three-dimensional wind field with vertical shear of horizontal wind, an analytic expression of the beam broadening spectral width was proposed. A comparison between the analytic expression and simulation results suggested that the expression is applicable in general.
   Reference: Chen and Chu, 2011

**REPRESENTATIVE PUBLICATIONS** (*: corresponding author)

1. **Chen, M. –Y.**, C. –L. Su, Y. –H. Chang, and Y. –H. Chu, Identification and removal of aircraft clutters to improve wind velocity measurement made with Chung-Li VHF Radar, *J. Atmos. Oceanic Technol.*, VOL. 39, 1217-1228, 2022.
2. Chen, J. –S., J. –W. Lai, H. Chien, C. –Y. Wang, C. –L. Su, K. –I. Lin, **M. –Y. Chen** and Y. –H. Chu, VHF Radar Observations of Sea Surface in the Northern Taiwan Strait, *J. Atmos. Oceanic Technol.*, VOL. 36, 297-315, 2019.
3. **陳孟遠**，黃紹欽，鳳雷。L 波段剖風儀雷達在台灣西南部觀測之初步結果。*氣象預報與分析*，231，1-11。2017。
4. **Chen, M. –Y.** and Y. –H. Chu, Beam broadening effect on Doppler spectral width of wind profiler. *Radio Science*, VOL. 46, RS5013, 2011.
5. **Chen, M. –Y.**, T. –Y. Yu, Y. –H. Chu, W. O. J. Brown and S. A. Cohn, Application of Capon technique to mitigate bird contamination on a spaced antenna wind profiler. *Radio Science*, VOL. 42, RS6005, 2007.