

# Winnie Chu

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## EDUCATION

- Projected 2017 Ph.D. Earth and Environmental Science  
Department of Earth and Environmental Science, Columbia University
- 2015 MPhil. Earth and Environmental Science  
Department of Earth and Environmental Science, Columbia University
- 2011 MSci. Geophysics, 1<sup>st</sup> class honors  
Department of Earth Sciences, University College London (UCL), U.K.

## PROFESSIONAL EXPERIENCE

- 2015 Visiting Student Researcher, Radar Science Division, Jet Propulsion Laboratory (4 months)
- 2011 – present Graduate Research Fellow, Marine Geology and Geophysics, Lamont-Doherty Earth Observatory (LDEO)
- 2010 Undergraduate Summer Researcher, Seismology Division, UCL (3 months)
- 2009 Undergraduate Summer Researcher, Planetary Science Division, UCL (3 months)

## HONORS AND AWARDS

- 2016 Outstanding Student Paper Award, American Geophysical Union
- 2015 – 2016 Earth and Space Science Fellowship, National Aeronautics and Space Administration
- 2011 – 2015 GSAS Graduate Student Fellowship, Columbia University
- 2010 – 2011 Old Students Association Trust Scholarship, UCL
- 2010 The Matthews Prize for Excellence in Geophysics, UCL
- 2009 The Chubb Prize for Works of Good Honours Standard, UCL
- 2007 – 2008 Alumni Scholarship, UCL

## PUBLICATIONS

### Refereed Papers

- 2016 **W. Chu**, D. M. Schroeder, H. Seroussi, T. T. Creyts and R. E. Bell. Seasonal subglacial drainage controlled by bed topography in Greenland, *Nature Geoscience* (*in review*)
- 2016 R.E. Bell, **W. Chu**, J. Kingslake, I. Das, M. Tedesco, K. J. Tinto, C. Zappa and M. Frezzotti. Active river drains damaging meltwater prevents Nansen Ice Shelf collapse for decades, *Nature* (*in review*)
- 2016 D.M. Schroeder, H. Seroussi, **W. Chu**, D.A. Young. Adaptively constraining radar attenuation and temperature across the Thwaites Glacier catchment using bed echoes, *Journal of Glaciology* (*in press*)
- 2016 **W. Chu**, R. E. Bell, T.T. Creyts. Rerouting of subglacial water flow between neighboring glaciers in West Greenland, *Journal of Geophysical Research*
- 2014 R.E. Bell, K. Tinto, I. Das, M. Wolovick, **W. Chu**, T. T. Creyts, N. Frearson, A. Abdi, and J. D. Paden. Deformation, warming and softening of Greenland's ice by refreezing meltwater, *Nature Geoscience*

### Paper in Preparation

- 2016 S. J. Livingstone, J. C. Ely, **W. Chu** and J. Kingslake. An (active/extensive) tunnel valley system beneath Humboldt Glacier, northern Greenland, *Geology*

- 2016 **W.Chu**, D.M. Schroeder, H. Seroussi, T.T. Creyts, S.J. Palmer and R.E. Bell. Distinct subglacial drainage patterns revealed in high-resolution mapping of basal radar reflectivity across Greenland
- 2016 **W.Chu**, I. Das, J. D. Millstein, R.E. Bell. An englacial radar attenuation modeling approach and application to the Ross Ice Shelf, *Journal of Glaciology*

## GRANTS

- 2015 NASA Earth and Space Science Fellowship (\$30,000)

## PRESENTATIONS

### Invited Talks

- 2015 Jet Propulsion Laboratory, California Institute of Technology, September 21<sup>st</sup>
- 2015 Department of Earth System Sciences, University of California Irvine, March 15<sup>th</sup>
- 2011 Department of Earth Sciences, Dartmouth College, February 21<sup>st</sup>

### Departmental Talks

- 2015 Marine Geology and Geophysics Seminar, LDEO, February 10<sup>th</sup>
- 2013 Marine Geology and Geophysics Seminar, LDEO, December 4<sup>th</sup>
- 2011 Department of Earth Sciences, UCL, May 27<sup>th</sup>

## Conference and Workshop Abstracts

### Oral

- 2016 W. Chu, Winter storage subglacial water modulates glacier velocity sensitivity to summer surface melting in Southwest Greenland, PARCA Meeting, Goddard Space Flight Center, Greenbelt, MD
- 2014 W. Chu, Spatial variability of subglacial hydrology in West Greenland, Subglacial Hydrology Workshop, Lamont-Doherty Earth Observatory, NY
- 2013 W. Chu, Surface melt induced changes in subglacial drainage, West Greenland, PARCA Meeting, Goddard Space Flight Center, Greenbelt, MD
- 2011 W. Chu, Analysis on airborne radar data: supraglacial lake drainage and meltwater routing near Jakobshavn Isbrae, Western Greenland, PARCA Meeting, Goddard Space Flight Center
- 2011 W. Chu, 2-D groundwater flow model for Nubian Sandstone aquifer system, Department of Earth Sciences, UCL, U.K.
- 2010 W. Chu, Analysis on ground-penetrating radar data: seismic risk and hazards in the Abruzzo Mountains, Central Italy, Department of Earth Science, UCL, U.K.

### Poster

- 2015 W. Chu, D.M. Schroeder, H. Seroussi, T. T. Creyts, R.E. Bell, Extensive subglacial hydrological network and basal temperate layer in West Greenland: inferred from an integrated approach of radar analysis and ice sheet modeling, AGU Fall Meeting, San Francisco, CA
- 2014 W. Chu, R.E. Bell, T.T. Creyts, Variable response of subglacial drainage system to surface melting in West Greenland, AGU Fall Meeting, San Francisco, CA
- 2013 W. Chu, R.E. Bell, T.T. Creyts, Subglacial drainage of surface meltwater affects ice motion, AGU Fall Meeting, San Francisco, CA
- 2013 W. Chu, Role of subglacial hydrology and basal topography in driving ice flow of Greenland glaciers, CLIVAR GRISO Workshop, Beverly, MA
- 2012 W. Chu, R.E. Bell, Surface melt induced changes in subglacial drainage, West Greenland, AGU Fall Meeting,
- 2012 W. Chu, R.E. Bell, Subglacial water mapping for Sarqardlliup Sermia outlet glacier, West Greenland, International Glaciological Society International Symposium, Fairbanks, AK
- 2011 W. Chu, S. Laxon, Analysis on CryoSat-2 radar altimeter data: performance assessment on measuring Arctic sea ice thickness and extent, UCL, U.K.

## **TEACHING**

- 2014 Guest Lecturer, Earth's Environmental System (1 Class)
- 2014 Teaching Assistant, Earth's Environmental System (10 weeks)
- 2013 Teaching Assistant, Earth's Environmental System (10 weeks)
- 2012 Teaching Assistant, Geodynamics (10 weeks)

## **Student Mentorship**

- 2016 Joanna Millstein, Dartmouth College

## **SUMMER SCHOOLS**

- 2014 Advanced Climate Dynamics Course, University of Bergen (6 weeks)
- 2012 International Summer School in Glaciology, University of Alaska (6 weeks)

## **FIELD WORK**

- 2014 Gravimeter Operator and Flight Planner, IcePod Project, Antarctica (6 weeks)
- 2013 Ice-Penetrating Radar Operator and Processing, IcePod Project, Greenland (10 days)
- 2011 Earth and Planetary System Science, UCL, Germany (5 days)
- 2010 Field Methods in Active Tectonics, UCL, Italy (15 days)
- 2009 Surface Processes and Structure, UCL, Spain, (10 days)
- 2008 Earth and Planetary Geology, UCL, Cornwall and Devon U.K. (5 days)
- 2007 Surface Processes and Sedimentary Study, UCL, Norfolk U.K. (3 days)
- 2007 Geological Mapping, UCL, Dorset U.K. (4 days)

## **PROFESSIONAL AFFILIATIONS**

- Member, International Glaciological Society
- Member, American Geophysical Union
- Member, European Geosciences Union
- Member, New York Academy of Science
- Member, Geological Society of London

## **PROFESSIONAL SERVICE**

- 2016 Judge, New York City Science and Engineering Fair
- 2015 Judge, EGU Outstanding Student Poster and PICO Award
- 2015 Session Co-convener, EGU Mass and energy balance of snow and ice and drivers of Greenland ice sheet mass loss

## **OUTREACH**

- 2016 Early Career Researcher Panelist, PANTHER Academy of Earth and Space Science
- 2016 NASA Sun and Earth Day, American Museum of Natural History, NY
- 2014 NASA Sun and Earth Day, American Museum of Natural History, NY
- 2011 – 2014 Lamont-Doherty Open House, Palisades, NY
- 2013 – 2014 Lamont-Doherty World Science Fair, Washington Square Park, NY