

Title**First Name** Christina

9/4/2007

Middle Name**Permission date****Last Name** Hulbe**Photo****Institution** PSU**Department** Geology**Email** chulbe@pdx.edu**Website****Phone** 503-725-3388

web.pdx.edu/~chulbe

Research Fields**Specific Research Interests**

- Atmospheric chemistry
- Biogeochemistry
- Carbon Footprint Analysis
- Climatology
- Community & Disaster Planning
- Data Analysis & Statistical Modeling
- Ecology & Ecosystem Management
- Economics
- Energy policy & technology
- Ethics
- Fire
- Forestry & Forest Management
- Geographic Information Systems
- Horticulture
- Human Impacts - economics
- Human Impacts - health
- Human Impacts - policy
- Hydrology
- Impacts - agriculture & horticulture
- Impacts - ecosystems, populations
- Impacts - physical
- Instrumentation
- Mitigation Policy
- Modeling Climate
- Modeling Ecosystems
- Modeling Socioeconomic Processes
- Natural Resource Policy & Planning
- Outreach & Engagement
- Paleoclimatology
- Paleoecology
- Physical Ecology
- Physiological Ecology
- Urban Ecology
- Water Policy & Planning
- Other...

My research in Antarctic glaciology involves understanding spatial and temporal variability in ice flow in the West Antarctic Ice Sheet and the outlet glacier/ice shelf systems of the Antarctic Peninsula. For this, I use a combination of numerical modeling and data from satellite remote sensing. An important goal in understanding the physics of ice discharge variability is to be able to provide useful guidance in the development of climate system models. The important short-term impact is on global sea level.

Polar glaciology
Numerical modeling

Projects

1. At Risk: Ice Shelves and Outlet Glaciers in Antarctica (collaborative); NASA 143,655; 3 yr, start 2/15/2005
2. Grounding line forensics: The history of grounding line retreat in the Kamb Ice Stream outlet region (collaborative); NSF 140,728; 3 yr start 06/01/06
3. IPY The Next Generation: A Community Ice Sheet Model for scientists and educators, with demonstration experiments in the Amundsen Sea Embayment region (collaborative); NSF 154,956 (with Dacian Daescu in Math); 2 years of the International Polar Year
4. Using Fracture Patterns and Ice Thickness to Study the History and Dynamics of Grounding Line Migration and Shutdown of Kamb and Whillans Ice Streams (collaborative); NSF 282,606 (with Ken Cruikshank in Geology); completed

Selected Recent Publications

1. Hiram Henry (MS) A Study of The Role of Firn Pack in the Melt Season Hydrology of Temperate Glaciers
2. Ashleigh Fines (MS) Fracture patterns and the reconstruction of outlet dynamics of Kamb Ice Stream, West Antarctica (in progress)
3. Adam Campbell (MS) Response of Crane Glacier, Antarctic Peninsula, to collapse of the Larsen B Ice Shelf and regional climate warming (in proposal stage)
4. Hulbe, C.L. and M.A. Fahnestock, Century-scale discharge stagnation and reactivation of the Ross ice streams, West Antarctica, JGR, in press.
5. Hulbe, C.L. and M.A. Fahnestock, 2004, West Antarctic ice stream discharge variability: mechanism, controls, and pattern of grounding line retreat, *Journal of Glaciology*, 50 (171), 471-484.
6. Hulbe, C.L., R. Johnston, I. Joughin, T.A. Scambos, 2005, Marine ice modification of fringing ice shelf flow, Arctic, Antarctic, and Alpine Research, 37 (3), 323-330.
7. Hulbe, C.L., D.R. MacAyeal, G.H. Denton, J. Kleman, T. Lowell, 2004, Catastrophic ice-shelf breakup as the source of Heinrich-Event icebergs, *Paleoceanography*, 19(1), PA1005.
8. Scambos, T. A., C. Hulbe, and M. Fahnestock, 2003, Climate-induced ice shelf disintegration in the Antarctic Peninsula In: *Antarctic Peninsula Climate Variability: Historical and Paleoenvironmental Perspectives* (E. Domack, A. Burnett, A. Leventer, P. Conley, M. Kirby, and R. Bindshadler, editors), Antarctic Research Series, 79, 79- 92.
9. MacAyeal, D.R., T.A. Scambos, C.L. Hulbe, and M.A. Fahnetock, 2003, Catastrophic ice-shelf break-up by an ice-shelf fragment capsizing mechanism, *Journal of Glaciology*, 49(146), 22-36.

Professional Activities

- US Scientific Standing Group on Physical Sciences to the Scientific Committee on Antarctic Research (an appointment by the Polar Research Board)
- Presentation at US National Academy of Sciences Annual Meeting, April 2007: Prepare Immediately for Whatever Happens Next: Human Societies and Climate Change
- NOAA GFDL Ice Sheet Modeling Workshop January 2007 (by invitation; called in response to shortcomings in the ice sheet components of IPCC AR4)
- Numerous public presentations; column on climate science for a popular political web log