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PROFESSIONAL EXPERIENCE

Fluid Dynamics and Solid Mechanics Group, Los Alamos National Laboratory

Los Alamos, NM (4/2010-present) - Scientist III
Los Alamos, NM (3/2008 – 4/2010) - Post Doctoral Research Fellow

Bristol Glaciology Centre, School of Geographical Sciences, University of Bristol

Bristol, U.K. (8/2006 – 2/2008) - Post Doctoral Research Associate

The Department of Earth and Space Sciences, University of Washington

Seattle, Washington (6/2001 – 6/2006) - Graduate Research and Teaching Assistant

SAIC General Sciences Corporation, NASA Goddard Space Flight Center

Greenbelt, MD (9/1998 – 6/2001) - Programmer/Analyst

Byrd Polar Research Center and Department of Geological Sciences, The Ohio State University

Columbus, OH (1/1996 - 9/1998) - Graduate Research Assistant

Juneau Icefield Research Program, University of Idaho and University of Alaska, S.E.

Alaska/British Columbia (6/1996 - 8/1996) - Graduate Teaching Assistant

RESEARCH STATEMENT

The goal of my research is to improve the ability of land ice models to simulate glaciers and ice sheets and to incorporate these improved models into large-scale Earth System Models for the purpose of better estimating past, current, and future changes in global sea level.

DUTIES

Co-Principle Investigator of the [Predicting Ice Sheet and Climate Evolution at Extreme Scales](#) (PISCEES) project funded by the Department of Energy Office of Science
Co-lead of the [Accelerate Climate Model for Energy](#)'s (ACME) Ocean and Ice team

EDUCATION

The University of Washington: Ph.D. Geophysics (10/2006)
The Ohio State University: M.Sc. Geology (12/1998)
The University of North Carolina at Wilmington: B.Sc. Geology (7/1995)

COMMUNITY INVOLVEMENT

Lead developer of CISM, the Community Ice Sheet Model
Member U.S. CLIVAR working group on ice sheet / ocean interactions in Greenland
Portland State Univ. Ice Sheet Modeling Summer School instructor
Scholarly reviews for: *Science*, *Nature*, *Nature Geoscience*, *Nature Communications*, *Proc. Natl. Acad. Sci.*, *Geophysical Research Letters*, *Journal of Geophysical Research*, *Reviews of Geophysics*, *The Cryosphere*, *Journal of Glaciology*, *Journal of Computational Physics*, *Annals of Glaciology*, *National Research Council*

PROFESSIONAL SOCIETIES

American Geophysical Union
European Geophysical Union
International Glaciological Society

SCHOLARSHIPS & AWARDS

National Academy of Sciences Kavli Fellow, 2008
Los Alamos National Laboratory, Directors Postdoctoral Fellow, 2008
David Johnston Scholarship, Dept. of Earth and Space Sciences, Univ. of Washington, 2002
Ohio State University Dept. Geological Sciences, Graduate Student Achievement award
North Carolina Systems Wide Field Camp scholarship, 1995
REU scholarship, 1994, Juneau Icefield Research Program
UNCW Dept. of Earth Sciences, Student Achievement award, 1994

POSTDOC & STUDENT ADVISEES

Matthew Hoffman (LANL)
Jeremy Fyke (LANL)
Saffia Hossainzadeh (Univ. of Calif. Santa Cruz)
Xichen Li (New York Univ.)
Louis Sass (Alaska Pacific Univ.)

PUBLICATIONS

- Zhang, T., **S. F. Price**, L. Ju, W. Leng, J. Brondex, G. Durand, and O. Gagliardini. 2017. A comparison of two Stokes ice sheet models applied to the Marine Ice Sheet Model Intercomparison Project for plan view models (MISMIP3d). *The Cryosphere*, **11**, 179–190, doi:10.5194/tc-11-179-2017.
- Price, S. F.**, M. J. Hoffman, J. A. Bonin, and 15 others. 2017. An ice sheet model validation framework for the Greenland ice sheet. *Geoscientific Model ...*, doi:10.5194/gmd-10-255-2017.
- Tuminaro, R., M. Perego, I. Tezaur, A. Salinger, and **S. F. Price**. 2016. A matrix dependent/algebraic multigrid approach for extruded meshes with applications to ice sheet modeling. *SIAM Journal on Scientific Computing*, **38**, c504–c532, doi:10.1137/15M1040839.
- Hoffman, M.J., L.C. Andrews, **S.F. Price**, G.A. Catania, T.A. Neumann, M.P. Luthi, J. Gulley, C. Ryser, R.L. Hawley, and B. Morriss. 2016. Greenland subglacial drainage evolution regulated by weakly connected regions of the bed. *Nat Comms*, **7**, doi:10.1038/ncomms13903.
- Bougamont, M., P. Christoffersen, **S.F. Price**, H.A. Fricker, S. Tulaczyk, and S.P. Carter. 2015. Reactivation of Kamb Ice Stream Tributaries triggers century-scale reorganization of Siple Coast ice flow in West Antarctica. *Geophys. Res. Lett.*, **42**, doi:10.1002/2015GL065782.
- Zhang, T., L. Ju, W. Leng, **S.F. Price**, and M. Gunzburger. 2015. Thermomechanically coupled modelling for land-terminating glaciers: a comparison of two-Dimensional, first-order and three-dimensional, full-Stokes approaches. *J. Glaciol.*, **61**(227), doi: 10.3189/2015JoG14J220.
- Tezaur, I., R. Tuminaro, M. Perego, A. Salinger, and **S.F. Price**. 2015. On the scalability of the Albany/FELIX first-order Stokes approximation ice sheet solver for large-scale simulations of the Greenland and Antarctic ice sheets. *Procedia Computer Science*, **51**, doi:10.1016/j.procs.2015.05.467.
- Tezaur, I., M. Perego, A. Salinger, R. Tuminaro, and **S.F. Price**. 2015. Albany/FELIX: a parallel, scalable and robust, finite element, first-order Stokes approximation ice sheet solver built for advanced analysis. *Geophys. Model Devel.*, **8**, doi:10.5194/gmd-8-1197-2015.
- la Peña, de, S., I.M. Howat, P.W. Neinow, M.R. van den Broeke, E. Mosley-Thompson, **S.F. Price**, D. Mair, B. Noel, and A.J. Sole. 2015. Changes in the firn structure of the western Greenland Ice Sheet caused by recent warming. *The Cryosphere*, **9**, 1203–1211, doi:10.5194/tc-9-1203-2015.
- Perego, M., **S.F. Price**, and G. Stadler. 2014. Optimal initial conditions for coupling ice sheet models to Earth system models. *J. Geophys. Res.*, **119**, doi:10.1002/2014JF003181.
- Hoffman, M.J. and **S.F. Price**. 2014. Feedbacks between coupled subglacial hydrology and glacier dynamics. *J. Geophys. Res.*, **119**, doi:10.1002/2013JF002943.

- Leng, W., L. Ju, M. Gunzburger, and **S. Price**. 2014. A parallel computational model for three-dimensional, thermo-mechanical Stokes flow simulations of glaciers and ice sheets. *Commun. Comput. Phys.*, doi:10.4208/cicp.310813.010414a.
- Fyke, J.G., M. Vizcaino, W.H. Lipscomb, and **S.F. Price**. 2014. Future climate warming increases Greenland ice sheet surface mass balance variability. *Geophys. Res. Lett.*, **41**, doi:10.1002/2013GL058172.
- Edwards, T.L., X. Fettweis, O. Gagliardini, F. Gillet-Chaulet, H. Goelzer, J.M. Gregory, M.J. Hoffman, P. Huybrechts, A.J. Payne, M. Perego, **S.F. Price**, A. Quiquet, and C. Ritz. 2014. Probabilistic parameterisation of the surface mass balance–elevation feedback in regional climate model simulations of the Greenland ice sheet. *The Cryosphere*, **8**, doi:10.5194/tc-8-181-2014.
- Edwards, T.L., X. Fettweis, O. Gagliardini, F. Gillet-Chaulet, H. Goelzer, J.M. Gregory, M.J. Hoffman, P. Huybrechts, A.J. Payne, M. Perego, **S.F. Price**, A. Quiquet, and C. Ritz. 2014. Effect of uncertainty in surface mass balance–elevation feedback on projections of the future sea level contribution of the Greenland ice sheet. *The Cryosphere*, **8**, doi:10.5194/tc-8-195-2014.
- Straneo, F. and 16 others. 2013. Challenges to understanding the dynamic response of Greenland’s marine terminating glaciers to oceanic and atmospheric forcing. *Bull. Amer. Meteor. Soc.*, **94**, 1131–1144.
- Higdon, D., J. Gattiker, E. Lawrence, C. Jackson, M. Tobis, M. Pratola, S. Habib, K. Heitmann, and **S.F. Price**. 2013: Computer Model Calibration Using the Ensemble Kalman Filter. *Technometrics*, **55**, 488–500, doi:10.1080/00401706.2013.842936.
- Shannon, S.R., A.J. Payne, I.D. Bartholomew, M.R. van den Broeke, T.L. Edwards, X. Fettweis, O. Gagliardini, F. Gillet-Chaulet, H. Goelzer, M.J. Hoffman, P. Huybrechts, D.W.F. Mair, P.W. Nienow, M. Perego, **S.F. Price**, C.J.P. Paul Smeets, A.J. Sole, R.S.W. van de Wal, and T. Zwinger. 2013. Enhanced basal lubrication and the contribution of the Greenland ice sheet to future sea-level rise. *PNAS*, doi:10.1073/pnas.1212647110.
- Nowicki, S. and 30 others. 2013. Spatial sensitivities of the Greenland Ice Sheet to environmental changes (the SeaRISE project). *J. Geophys. Res.* **118**, doi:10.1002/jgrf.20076
- Nowicki, S. and 30 others. 2013. Spatial sensitivities of the Antarctic Ice Sheet to environmental changes (the SeaRISE project). *J. Geophys. Res.* **118**, doi:10.1002/jgrf.20081
- Bindschadler, R. A. and 27 others. 2013. Ice-sheet model sensitivities to environmental forcing and their use in projecting future sea-level (the SeaRISE project). *J. Glaciol.*, **59**(214), 195–224.
- Leng, W., L. Ju, M. Gunzburger, and **S.F. Price**. 2013. Manufactured Solutions and the Numerical Verification of Isothermal, Nonlinear, Three-dimensional Stokes Ice Sheet Models. *The Cryosphere*, **7**, 19–29.
- Gladish, C., D. Holland, P.R. Holland, and **S.F. Price**. 2012. Ice shelf basal channels in a coupled ice/ocean model. *J. Glaciol.*, **58**(212), 1227–1244.
- Evans, K. J., A. G. Salinger, P. H. Worley, **S. F. Price**, W. H. Lipscomb, J. A. Nichols, J. B. White III, M. Perego, M. Vertenstein, J. Edwards, and J. F. Lemieux. 2012. A modern solver interface to manage solution algorithms in the Community Earth System Model. *Int. J. High Perform. Comp.* **26**, 54–62.
- Leng, W., L. Ju, M. Gunzburger, **S. Price**, and T. Ringler. 2012. A Parallel High-Order Accurate Finite Element Nonlinear Stokes Ice-Sheet Model and Benchmark Experiments. *J. Geophys. Res.*, **117**, F01001, doi:10.1029/2011JF001962.
- Price, S.F.**, A.J. Payne, I.M. Howat, and B.E. Smith. 2011. Committed sea-level rise for the next century from Greenland ice sheet dynamics during the past decade. *PNAS*, doi:10.1073/pnas.1017313108.
- Price, S.F.**, G. Flowers, and C. Schoof. 2011. Improving hydrology in land ice models. *EOS*, **92**(19), 164.
- Carter, S. P., H. A. Fricker, D. D. Blankenship, J. V. Johnson, W. H. Lipscomb, **S.F. Price**, and D.A. Young. Modeling 5 years of subglacial lake activity in the MacAyeal Ice Stream (Antarctica) catchment through assimilation of ICESat laser altimetry. 2011. *J. Glaciol.*, **57**, 1098–1112.
- Bougamont, M., **S. Price**, P. Christoffersen, and A.J. Payne. 2011. Dynamic patterns of ice stream flow in a 3d higher-order ice sheet model with plastic bed and simplified hydrology. *J. Geophys. Res.*, **116**, F04018, doi:10.1029/2011JF002025.
- Dukowicz, J. K., **S.F. Price**, and W. H. Lipscomb. 2011. Incorporating arbitrary basal topography in the variational formulation of ice sheet models. *J. Glaciol.* **57**(203), 461–467.

- Lemieux, J.F., **S.F. Price**, K.J. Evans, D. Knoll, A.G. Salinger, D. Holland, and A.J. Payne. 2011. Implementation of the Jacobian-Free Newton-Krylov method for solving the first-order ice sheet momentum balance. *J. Comput. Phys.*, **230**, 6531-6545, doi:10.1016/j.jcp.2011.04.037.
- Zhang H., L. Ju, M. Gunzburger, T. Ringler, and **S. Price**. 2011. Coupled models and parallel simulations for three-dimensional full Stokes ice sheet modeling. *Numer. Math. Theor. Meth. Appl.* **4**, 396-418.
- Dukowicz, J. K., **S.F. Price**, and W. H. Lipscomb. 2010. Consistent approximations for ice-sheet dynamics from a principle of least action. *J. Glaciol.*, **56**(197), 480-496.
- Price, S.F.** 2009. From the front. *Nature Geosc.*, **2**(1), doi:10.1038/ngeo424.
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- Price, S.F.**, H. Conway, E.D. Waddington, and R.A. Bindschadler. 2008. Model investigations of inland migration of fast-flowing outlet glaciers and ice streams. *J. Glaciol.*, **54**(184), 49-60.
- Catania, G.A., T.A. Neumann, and **S.F. Price**. 2008. Characterizing englacial drainage in the ablation zone of the Greenland ice sheet. *J. Glaciol.* **54**(187), 567-578.
- Lipscomb, W.H., R.A. Bindschadler, E. Bueler, D. Holland, J.V. Johnson, and **S.F. Price**. 2008. A community ice sheet model for sea level prediction. *EOS*, **3**, 23.
- Neumann, T.A., H.B. Conway, **S.F. Price**, E.D. Waddington, G.A. Catania, and D.L. Morse. 2008. Holocene accumulation and ice-sheet dynamics in central West Antarctica, *J. Geophys. Res.*, **113**, F02018, doi:10.1029/2007JF000764.
- Pattyn, F., Perichon, L., Aschwanden, A., Breuer, B., de Smedt, B., Gagliardini, O., Gudmundsson, G. H., Hindmarsh, R., Hubbard, A., Johnson, J. V., Kleiner, T., Kononov, Y., Martin, C., Payne, A. J., Pollard, D., **Price, S.**, Ruckamp, M., Saito, F., Soucek, O., Sugiyama, S., and Zwinger, T. 2008. Benchmark experiments for higher-order and full-Stokes ice sheet models (ISMIP-HOM), *The Cryosphere*, **2**, 95-108.
- Price, S.F.**, E.D. Waddington, and H. Conway. 2007. A full-stress, thermomechanical flowband model using the finite-volume method. *J. Geophys. Res.*, **112**, F03020, doi:10.1029/2006/JF000724.
- Price, S.F.**, H. Conway, and E.D. Waddington. 2007. Evidence for late Pleistocene thinning of Siple Dome, West Antarctica. *J. Geophys. Res.*, **112**, F03021, doi:10.1029/2006/JF000725.
- Price, S.F.** and J.S. Walder. 2007. Modeling the Dynamical Response of a Crater Glacier to Lava-Dome Emplacement Mount St. Helens, Washington, U.S.A. *Ann. of Glaciol.*, **45**, 21-28
- Price, S.F.**, R.A. Bindschadler C.L. Hulbe, and D.D. Blankenship. 2002. Force balance along an inland tributary and onset to Ice Stream D, West Antarctica. *J. Glaciol.* **48**(160), 20-30.
- Joughin, I., S. Tulaczyk, R.A. Bindschadler, **S.F. Price**. 2002. Changes in west Antarctic ice stream velocities: Observation and analysis, *J. Geophys. Res.*, **107**(B11), 2289, doi:10.1029/2001JB001029.
- Price, S.F.**, R.A. Bindschadler, C.L. Hulbe and I. Joughin. 2001. Post-stagnation behavior in the upstream regions of Ice Stream C, West Antarctica. *J. Glaciol.*, **47**(157), 283-294.
- Price, S.F.** and I.M. Whillans. 2001. Crevasse patterns at the onset to Ice Stream B, West Antarctica. *J. Glaciol.*, **47**(156), 29-36.
- Joughin, I., L. Gray, R. Bindschadler, **S. Price**, D. Morse, C. Hulbe, K. Mattar and C. Werner. 1999. Tributaries of West Antarctic ice streams revealed by Radarsat interferometry. *Science*, **286** (5438), 283-286.
- Price, S.F.** and I.M. Whillans. 1998. Delineation of a catchment boundary using velocity and elevation measurements. *Ann. Glaciol.*, **27**, 140-144.

PUBLICATIONS (other)

- Price, S.** and H. Seroussi. 2014. Greenland Ice Sheet and ocean interactions: Progress and Challenges, *U.S. CLIVAR Variations*, **12**(2), 31-40.
- Straneo, F., O. Sergienko, P. Heimbach and 19 others. 2012. Understanding the dynamic response of Greenland's marine terminating glaciers to oceanic and atmospheric forcing: A whitepaper by the U.S. CLIVAR Working Group on Greenland Ice Sheet-Ocean Interactions (GRISO), Report 2012-2, U.S. CLIVAR Project Office, Washington, DC 20006, 22 pp.

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Bindschadler, R.A., P.U. Clark, D.M. Holland, W. Abdalati, R. Hock, K. Leonard, L. Padman, **S.F. Price**, J. Stone, P. Winberry. 2011. A research program for projecting sea level rise from land ice loss. NSF, USAP Special Report following NSF-sponsored workshop, July 2010.

Price, S.F. 2006. Development and applications of a full-stress flowband model for ice. (Ph.D. thesis, University of Washington.)

Price, S.F. 1998. Studies in the catchment and onset regions of Ice Stream B, West Antarctica. (masters thesis, The Ohio State University.)