Hiroaki MATSUI

Professional Preparation:

Department of Geophysics, Graduate School of Science, Tohoku University, Ph.D. in Science,2000.
Department of Geophysics, Graduate School of Science, Tohoku University, M.A. in Science,1996
Department of Geophysics, Tohoku University, B.A. in Science, 1994

Appointments:

Application Programmer 4, 2015-present, Department of the Earth and Planetary Sciences, University of California, Davis.
Programmer VI, 2013-2015, Department of the Earth and Planetary Sciences, University of California, Davis.
Visiting scientist, 2010-2013, Department of the Earth and Planetary Science, University of California, Berkeley.
Visiting scholar, 2008-2010 Department of the Earth and Planetary Science, University of California, Berkeley.
Research Scientist, 2007-2010, Dept. of the Geophysical Sciences, the University of Chicago.
Research Associate, 2003-2007, Dept. of the Geophysical Sciences, the University of Chicago.
Postdoctoral researcher, 2000-2003, Research Organization for Information and Technology, Japan.

Products:

Most closely related to the proposal –

Matsui, H., E. Heien, J. Aubert, J.M. Aurnou, M. Avery, B. Brown, B.A. Buffett, F. Busse, U.R. Christensen, C.J. Davies, N. Featherstone, T. Gastine, G.A. Glatzmaier, D. Gubbins, J.-L. Guermond, Y.-Y. Hayashi, R. Hollerbach, L.J. Hwang, A. Jackson, C.A. Jones, W. Jiang, L.H. Kellogg, W. Kuang, M. Landeau, P. Marti, P. Olson, A. Ribeiro, Y. Sasaki, N. Schaeffer, R.D. Simitev, A. Sheyko, L. Silva, S. Stanley, F. Takahashi, S. Takehiro, J. Wicht, and A.P. Willis, Performance benchmarks for a next generation numerical dynamo model, submitted to *Geochemistry, Geophysics, Geosystems.*

Matsui, H., and E. King, and B. A. Buffett, Multi-scale convection in a geodynamo simulation with uniform heat flux along the outer boundary, *Geochemistry, Geophysics, Geosystems*, **15**, 3212–3225, 2014.

Matsui, H. and B.A. Buffett, Characterization of subgrid-scale terms in a numerical geodynamo simulation, *Phys. of Earth and Planetary Interiors, 223*, 77–85, 2013.

Matsui, H., , M. Adams, D. Kelley, S.A. Triana, D. Zimmerman, B.A. Buffett, D.P. Lathrop, Numerical and experimental investigation of shear-driven inertial oscillations in an Earth-like geometry, *Phys. of Earth and Planetary Interiors*, *188*, 194–202, 2012.

Matsui, H. and B.A. Buffett, A dynamic scale-similarity model for dynamo simulations in a rotating plane layer, *Geophysical and Astrophysical Fluid Dynamics, 101*, 451-468., 2007.

Additional significant products –

Matsui, H. and B.A. Buffett, Sub-grid scale model for convection-driven dynamos in a rotating plane layer, *Phys. of Earth and Planetary Interiors*, *153*, 103-123, 2005.

Matsui, H. and B.A. Buffett, Commutation Error Correction for Large Eddy Simulations of Convection Driven Dynamos, *Geophysical and Astrophysical Fluid Dynamics*, *101*, 429-450., 2007.

Matsui, H. and H. Okuda, MHD dynamo simulation using the GeoFEM platform -Comparison with a spectral method, *Pure and Applied Geophysics, 161,* 2199-2212, 2004.

Matsui, H. and H. Okuda, Development of a simulation code for MHD dynamo processes using the GeoFEM platform, *International Journal of Computational Fluid Dynamics*, *18*, 323-332, 2004

Matsui, H. and H. Okuda, Thermal convection analysis in a rotating shell by a parallel finite-element method --- development of a thermal-hydraulic subsystem of GeoFEM, *Concurrency and Computation: Practice and Experience*, *14*, 465-481, 2002.

Synergistic Activities:

Innovation and Entrepreneurship Activities
Development and release of numerical dynamo code 'Calypso' as an open source program.

Collaborators and Other Affiliations

Aubert, Julien (Institut de Physique du Globe de Paris),
Aurnou, Jonathan M. (University of California, Los Angeles),
Avery, Margaret (University of California, San Diego),
Brown, Ben (University of Colorado),
Buffett, Bruce A. (University of California, Berkeley),
Busse, Friedrich (University of Bayreuth),
Christensen, Ulrich R. (Max Planck Institute fur Sonnensystemforschung),
Davies, Christopher J. (University of Leeds),
Featherstone, Nicholas (University of Colorado),
Gastine, Thomas (Max Planck Institute fur Sonnensystemforschung),
Glatzmaier, Gary A. (University of California, Santa Cruz),
Gubbins, David (University of Leeds),
Guermond, Jean-Luc (Texas A&M University),
King, Eric M. (University of California, Berkeley),
Hayashi, Yoshi-Yuki (Kobe University),
Heien, Eric (University of California, Davis),
Hollerbach, Rainer (University of Leeds),
Hwang, Lorraine J. (University of California, Davis),
Jackson, Andrew (ETH Zurich),
Jones, Chris A. (University of Leeds),
Jiang, Weiyuan (NASA Goddard Space Flight Center),
Kellogg, Louise H. (University of California, Davis),
Kuang, Weijia (NASA Goddard Space Flight Center),
Landeau, Maylis (Johns Hopkins University),
Marti, Philippe (University of Colorado),
Peter Olson (Johns Hopkins University),
Ribeiro, Adolfo (University of California, Los Angeles)
Sasaki, Youhei (Kyoto University),
Schaeffer, Nathanael (Universite de Grenoble),
Simitev, Radostin D. (University of Glasgow),
Sheyko, Andrey (ETH Zurich),
Silva, Luis (University of Glasgow),
Stanley, Sabine (University of Toronto),
Takahashi, Futoshi (Kyushu University),
Takehiro, Shin-ichi (Kyoto University),
Wicht, Johannes (Max Planck Institute fur Sonnensystemforschung),
Willis, Ashley P. (University of Sheffield).

Graduate Advisors and Postdoctoral Sponsors:

Graduate Advisor:
Oya, Hiroshi (Tohoku University for Dr., M.A., and B.A.)

Postdoctoral Sponsors:
Okuda, Hiroshi (University of Tokyo)
Buffett, Bruce A.(University of California, Berkeley)
Kellog, Louise H. (University of California, Davis)