David Morison
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Employment

Graduate Student (2015 - present)
Enrolled in Physics PhD program at the University of Utah
Advisor: Ken Golden

Physicist IV (2006 - 2015)
The Center for Environmental and Information Systems
Applied Physics Laboratory
University of Washington
Department Head: David Jones

Scientific Staff: Modeling (2005)
Research Vessel Nathaniel B. Palmer
Supervisor: Ramsey Harcourt

Field Work (2004)
Deployed a remotely operated vehicle
in the Van Mijenfjorden of Svalbard
Supervisor: Frank Nilsen

Education

Current Graduate Student (2015 - present)
Physics Department Ph.D. Program,
University of Utah, Salt Lake City, USA

Bachelor of Arts (2002)
Majoring in Physics and in Applied Math,
University of California, Berkeley, USA

Expedition Experience

- Worked aboard CCGS Des Groseilliers, deploying oceanographic instruments in leads, during SHEBA in 1998.
- Worked from NoCGV in Van Mijenfjorden in Svalbard, collecting data with a tethered ROV in 2004.
- Interfaced with ships data aboard R.V. Nathaniel B. Palmer during the 2005 Maud-NESS cruise to prevent tangling between scientific instruments.

Accomplishments

- Developed an invertible model of blood flow through the brain and it's measurement with ultrasound.
- Designed and wrote a radiative transfer model; utilized in publication 3.
- Developed a new method of buoy drift prediction which was successfully tested during a sea trial in the Sea of Japan.
- Validated a new version of a radar model utilized by the U.S. Navy for engineering and design purposes.
- Translated and validated an analytic model of acoustic underwater bottom reflection.
- Prospectively demonstrated a geostatistic method for assimilating weather observations into ensemble forecasts. This method is computationally very cheap compared to established methods such as an ensemble Kalman filter.
- Prospectively demonstrated the prediction of over the horizon radar ducting, using satellite data.
- Studied potential acoustic propagation from hydrothermal vents.
- Developed a simulation of the motion of tethered and driven oceanographic instruments hanging from a ship. I deployed this simulation successfully aboard R.V. Nathaniel B. Palmer during the 2005 MaudNESS cruise.

Computer Skills and Applied Statistics

- Python, emphasizing numpy and matplotlib
- Linux, working mostly in the Bash shell and editing in Vim
- LaTeX
- MATLAB
- Fortran, have modified, compiled and used large models
- Neural net, Kalman filter, Kriging/Optimal Interpolation, Spectral Clustering

Publications

1. Caren Marzban, Paul R. Illian, David Morison and Pierre D. Mourad, A Double-Gaussian, Percentile-Based Method for Estimating Maximum Blood Flow Velocity, *Journal of Ultrasound in Medicine*, 32(11) pp. 1913-20, 2013
2. Caren Marzban, Paul R. Illian, David Morison, Anne Moore, Michel Kliot, Marek Czosnyka and Pierre D. Mourad, A Method for Estimating Zero-Flow Pressure and Intracranial Pressure, *Journal of Neurosurgical Anesthesiology*, 25(1) pp. 25-32, 2013
3. Maria Zatko, Joseph Erbland, Joel Savarino, Lei Genga, Lauren Easley, Andrew Schauer, Timothy Bates, Patricia K. Quinn, Bonnie Light, David Morison, Hans D. Osthoff, Seth Lyman, William Neff, Bin Yuan and Becky Alexander, The Magnitude of the Snow-Sourced Reactive Nitrogen Flux to the Boundary Layer in the Uintah Basin, Utah, USA, *Journal of Atmospheric Chemistry and Physics*, 6 pp. 13837-13851, 2016
4. Sarah Dewey, James Morison, Ronald Kwok, Suzanne Dickinson, David Morison and Roger Andersen, Arctic Ice-Ocean Coupling and Gyre Equilibration Observed With Remote Sensing, *Geophysical Research Letters*, 45(3) pp. 1499-1508, 2018

5. James Morison, Ron Kwok, Suzanne Dickinson, Roger Andersen, Cecilia Peralta-Ferriz, David Morison, Ignatius Rigor, Sarah Dewey and John Guthrie, The Cyclonic Mode of Arctic Ocean Circulation, *Journal of Physical Oceanography*, (in press 20 Jan. 2021)