

Pierre-Dominique Pautet
Research Scientist II

Center for Atmospheric and Space Sciences (CASS), Utah State University, Logan, UT 84322

Education

Ph.D. 2000, Image Processing, University of Franche-Comté, Besançon, France.

Thesis: "Study with low-level imagery of an high-altitude atmospheric emission in the near infrared"

M.S. 1996, Image Processing, Laboratory of Image Electronics and Computing (LE2I), University of Bourgogne, Dijon, France.

Thesis: "3-D image system with one camera"

B.S. 1995, Applied physics, University of Bourgogne, Dijon, France.

Research project: "Study of approximation methods for the Gaussian filter and its derivatives - 2D implementation"

Appointments

- April 2008-Present: Research Scientist, Center for Atmospheric & Space Sciences, USU
- Nov. 2006-March 2008: Visiting Scientist, INPE, São José dos Campos, Brazil.
- Oct. 2001-Oct. 2006: Post Doctoral Fellow, Center for Atmospheric & Space Sciences, USU
- Sep.1997-Dec.2000: Research Fellow, University of Franche-Comté, Besançon, France
- Sep. 1995-Jun. 1996: Research Assistant, Laboratory of Image Electronics and Computing (LE2I), University of Bourgogne, Dijon, France

Experience:

- Developed imaging systems and acquisition software to observe multiple airglow emissions for studying mesospheric and thermospheric dynamics;
- Developed analysis software packet for airglow imaging studies;
- Deployed and operated MTM and AMTM instruments during numerous field projects (ALO, ALOMAR, ANGWIN, DEEPWAVE, GW_LCYCLE 2, SuperSoaker, Tierra del Fuego);
- PI of the NSF-funded project "Mesospheric Investigation of Gravity Wave and Mountain Wave activities and Impacts in the Lee Side of the Southern Andes" (2017-2020);
- Co-I of the NSF-funded project "Continental-Scale Studies of Mesospheric Dynamics Using the Antarctic Gravity Wave Instrument Network (ANGWIN)" (2015-2020);

(i) Five relevant publications:

Pautet, P.-D., M. J. Taylor, J. B. Snively, and C. Solorio, Unexpected occurrence of mesospheric frontal gravity wave events over South Pole (90°S), *J. Geophys. Res. Atmos.*, **123**, doi.org/10.1002/2017JD027046, 2018

Pautet P.-D., Taylor M.J., Fritts D.C., Bossert K., Williams B.P., Broutman D., Ma J., Eckermann S., and Doyle J., Large amplitude mesospheric response to an orographic wave generated over the Southern Ocean Auckland Islands (50.7°S) during the DEEPWAVE project, *J. Geophys. Res.*, 10.1002/2015JD024336, 2016

Eckermann S.D., Broutman D., Ma J., Doyle J.D., **Pautet P.-D.**, Taylor M.J., Bossert K., Williams B.P., Fritts D.C., and Smith R.B., Dynamics of orographic gravity waves observed in the mesosphere over Auckland Islands during the Deep Propagating Gravity Wave Experiment (DEEPWAVE), *J. Atmos. Sci.*, doi: 10.1175/JAS-D-16-0059.1, 2016

Fritts D.C., **Pautet P.-D.**, Bossert K., Taylor M.J., Williams B.P., Iimura H., Yuan T., Mitchell N.J., and Stober G., Quantifying gravity wave momentum fluxes with mesosphere temperature mappers and correlative instrumentation, *J. Geophys. Res.*, doi: 10.1002/2014JD022150, 2014

Pautet P.-D., Taylor M.J., Pendleton Jr W.R., Zhao Y., Yuan T., Esplin R., and McLain D., An Advanced Mesospheric Temperature Mapper for high-latitude airglow studies, *App. Optics*, **53** (26), 5934-5943, 2014

(ii) Five other significant publications:

Fritts, D.C., S.B. Vosper, B.P. Williams, K. Bossert, J.M.C. Plane, M.J. Taylor, **P.-D. Pautet**, S.D. Eckermann, C.G. Kruse, R.B. Smith, A. Dörnbrack, M. Rapp, T. Mixa, I.M. Reid, and D.J. Murphy, Large-amplitude mountain waves accompanying weak cross-mountain flow during DEEPWAVE Research Flight RF22 on 13 July 2014, *J. Geophys. Res.*, **123**, doi.org/10.1029/2017JD028250, 2018

Hecht, J. H., Fritts, D. C., Wang, L., Gelinas, L. J., Rudy, R. J., Walterscheid, R. L., Taylor, M.J., **Pautet, P.-D.**, Smith S., Franke, S. J., Observations of the breakdown of mountain waves over the Andes Lidar Observatory at Cerro Pachon on 8/9 July 2012, *J. Geophys. Res.: Atmos.*, **123**, 276–299, <https://doi.org/10.1002/2017JD027303>, 2018

Heale C.J., K. Bossert, J.B. Snively, D.C. Fritts, **P.-D. Pautet**, M. J. Taylor, Numerical modeling of a multiscale gravity wave event and its airglow signatures over Mount Cook, New Zealand during the DEEPWAVE campaign, *J. Geophys. Res. Atmos.*, **122**, 846–860, doi:10.1002/2016JD025700, 2017

Bossert K., D.C. Fritts, C.G. Kruse, B.P. Williams, C.J. Heale, **P.-D. Pautet**, M.J. Taylor, and J.B. Snively, Secondary Gravity Wave Generation Over New Zealand During the DEEPWAVE Campaign, *J. Geophys. Res. Atmos.*, **122**, 7834–7850, doi:10.1002/2016JD026079, 2017

Pautet P.-D., Stegman J., Wrasse C.M., Nielsen K., Takahashi H., Taylor M.J., Hoppel K.W., and Eckermann S.D., Analysis of gravity waves structures visible in noctilucent cloud images, *J. Atmos. Sol.-Terr. Phys.*, **73**, 14, 2082-2090, doi:10.1016/j.jastp.2010.06.001, 2011

Synergistic Activities

- Reviewer for NSF and NASA proposals;
- Reviewer for publications in Journal of Geophysical Research, Geophysical Research Letters, Journal Atmospheric and Solar-Terrestrial Physics, Advances in Space Physics, Atmospheric Chemistry and Physics, Atmospheric Measurement Techniques;
- Co-advised several undergraduate and graduate students research;
- Participated in several field campaigns related to gravity waves, equatorial plasma bubbles, sprites, and meteors studies involving several US and international scientific institutions;
- Developed imaging capabilities for various platforms (ground-based, balloon, aircraft) for a variety of atmospheric studies.

Collaborators and other affiliations (in the past 48 months):

J.V. Bageston (INPE, Brazil), K. Bossert (UAF), X. Chu (Colorado University), A. Dörnbrack (DLR, Germany), J. Doyle (NRL), S. Eckermann (NRL), D.C. Fritts (GATS), C. Heale (ERAU), J. Hecht (Aerospace), B. Kaifler (DLR, Germany), A.Z. Liu (ERAU), T. Moffat-Griffin (BAS, UK), D. Murphy (AAD, Australia), T. Nakamura (NIPR, Japan), R. Smith (Yale), S. Smith (BU), J. Snively (ERAU), G. Stober (IAP, Germany), G. Swenson (Univ. Illinois), F. Vargas (Univ. Illinois), R. Walterscheid (Aerospace), B. Williams (GATS)