# *Curriculum Vitae*
# Jean-François Lamarque

## *Education*

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| 1993 | Ph.D. in Physics (Thesis advisors: Pr. A. Berger and Dr. G. Brasseur), Catholic University of Louvain (Belgium): la plus grande distinction |
| 1988 | "Diplôme d'Etudes Approfondies en Sciences Physiques," Catholic University of Louvain (Belgium): la plus grande distinction |
| 1987 | "Licence en Sciences Physiques," Catholic University of Louvain (Belgium): la plus grande distinction (highest honors) |

## *Employment history*

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| 2007-Present | Scientist III, Atmospheric Chemistry Division, National Center for Atmospheric Research, Boulder, Colorado |
| 2004-2007 | Scientist II, Atmospheric Chemistry Division, National Center for Atmospheric Research, Boulder, Colorado |
| 2002-2004 | Scientist I, Atmospheric Chemistry Division, National Center for Atmospheric Research, Boulder, Colorado |
| 1997–2002 | Project Scientist I (research area: data assimilation), National Center for Atmospheric Research, Boulder, Colorado |
| 1995–1997 | Visiting Scientist (research area: stratosphere-troposphere exchange), National Center for Atmospheric Research, Boulder, Colorado |
| 1993–1995 | Postdoctoral fellow, Advanced Study Program, National Center for Atmospheric Research, Boulder, Colorado |
| 1990–1993 | Graduate Research Assistant, Advanced Study Program, National Center for Atmospheric Research, Boulder, Colorado |
| 1987–1990 | Research Assistant, Catholic University of Louvain (Belgium) |

## *Community service and leadership*

### External committees

- Steering committee member of the International Geosphere-Biosphere Program (IGBP) Global Emissions Inventory Activity (GEIA) (2004-present)
- Steering committee member of the IGAC/SPARC Atmospheric Chemistry and Climate (AC&C) program (2006-present)
- Co-chairman of the TropChem (IGAC/SPARC) program (2007-present)
- Co-chair of the CCSM Chemistry-Climate Working Group (2007-present)

### Internal committees

- Participant to the NCAR Strategic Plan Retreat (June 2005)
- Participant to the ESSL Strategic Plan Retreat (July 2005)

- Chairman of the Early Career Scientist Assembly (February 2006-June 2007)
- Member of the NCAR Scientist Assembly Executive Committee (February 2006-present)
- Member of the ACD Director Search Committee (August 2006-present)

### Workshop organizer

- Chemistry-Climate Interactions, Santa Fe, NM, February 2003.
- NCAR Emission workshop, Boulder, CO, July 2003.
- Chemistry-Climate Interactions, Santa Fe, NM, February 2004.
- Chemistry-Climate Interactions, Boulder, CO, February 2005.
- PETM Data-Model Integration Workshop, Santa Fe, NM, May 2007.

### Professional reviews

1. *Funding agencies*
   - National Aeronautics and Space Administration (NASA)
   - National Science Foundation (NSF)
   - Canadian Space Agency (CSA)
   - Dutch Meteorological Institute (KNMI)

2. *Journals*
   - Atmospheric Chemistry and Physics Discussions
   - Atmospheric Environment
   - Geophysical Research Letters
   - Journal of the Atmospheric Sciences
   - Journal of Geophysical Research – Atmospheres
   - Monthly Weather Review
   - Proceedings of the National Academy of Science

## *Education and Outreach Activities*

1. *Significant Opportunities in Atmospheric Research and Science (SOARS) Protégés*
   - Okason Morrison, 2003
2. *Undergraduate Student Supervision and Mentoring*
   - Edouard Davin, 2003
   - Thomas Laepple, 2003, 2005
3. *Graduate Student Supervision and Mentoring*
   - Gabrielle Pétron, 2000-2003
   - Florence Bocquet, 2005-2006
   - Gabriela Santos, 2007-
   - Tianyi Fan, 2007-
4. *Thesis jury member*
   - Martine Michou, 2005

## *Recent proposals funded*

1. August 2005: NCAR Opportunity Fund FY 2006 (co-PI): $117,142 (1 year)
2. September 2006: NCAR Opportunity Fund FY 2007 (PI): $69,342 (1 year)
3. September 2006: Department of Energy (co-I): $950,000 (per year for 5 years)

## *Awards*

1. December 2006: UCAR Outstanding Accomplishment Awards for Scientific and Technical Excellence for the MOPITT instrument

## *Presentations*

**Talks at Scientific Meetings and Workshops**

1. Energy Modeling Forum, Snowmass, 2007
2. NCAR workshop on the PETM, Santa Fe, 2007
3. Atmospheric Chemistry and Climate, Geneva, Switzerland, 2007
4. American Geophysical Union, San Francisco, 2006
5. DOE CCSP, Princeton, NJ, U.S.A., 2006
6. Atmospheric Chemistry and Climate, Boulder, CO, U.S.A., 2006
7. Aspen Global Change Institute, Aspen, CO, U.S.A., 2006
8. CCSM Workshop, Breckenridge, CO, U.S.A., 2006
9. European Geophysical Society, Vienna, Austria, 2006
10. DOE ASP meeting, Alexandria, DC, U.S.A., 2005.
11. CCSM Workshop, Breckenridge, CO, U.S.A., 2005
12. ACCENT/IPCC AR-4 Workshop, Oslo, Norway, 2005
13. IGAC, Christchurch, New Zealand, 2004
14. Joint GEIA/ACCENT Workshop, Paris, France, 2004
15. GEIA Workshop on fires, Isle-sur-la-Sorgue, France, 2002
16. European Geophysical Society, Nice, France, 2001
17. American Geophysical Union, San Francisco, 2000
18. American Geophysical Union, Washington, DC, 2000
19. SPARC data assimilation workshop, Laurel, U.S.A., 2000
20. Journées scientifiques sur l'assimilation d'observations de la chimie atmosphérique, Paris, France, 1999.
21. XXI General Assembly of the IUGG, Invited Talk on "Modeling of Stratosphere-Troposphere Exchange", Session MW5, Boulder, Colorado, U.S.A., 1995.
22. NATO Advanced Research Workshop on Stratosphere-Troposphere Exchange, Cambridge, United Kingdom, 1993.

**Participation to other Scientific Meetings, including posters.**

1. Climate Change Prediction Program, Cambridge, MA, 2006.
2. Climate Change Science Program, Washington, DC, 2005.
3. Climate Change Prediction Program, Seattle, WA, 2004.

4. American Geophysical Union, San Francisco, CA, 2003.
5. Climate Change Prediction Program, Charleston, SC, 2003.
6. Gordon Conference on Atmospheric Chemistry, Newport, RI, 2001.
7. American Geophysical Union, Boston, MA, 2001.

**Invited Talks at Universities and Laboratories**

1. University of Illinois, Urbana-Champaign, 2007.
2. Nara Women's University, Nara, Japan, 2000.
3. Köln University, Köln, Germany, 1994.
4. National Center for Meteorological Research, Toulouse, France, 1993.

## *Publications*

**Ph. D. Thesis**
"Analysis of mass transport and potential vorticity budget in a simulated tropopause folding", 1993. Catholic University of Louvain, Belgium (available as NCAR/CT-142). Advisors: A. Berger and G. Brasseur

**Refereed Journal Articles**

1. **Lamarque, J.-F**., D. E. Kinnison, P.G. Hess and F. Vitt, Simulated lower stratospheric trends between 1970 and 2005: identifying the role of climate and composition changes. Accepted for publication in *J. Geophys. Res*., 2007.
2. Clerbaux, C., D. Edwards, L. Emmons , M. Deeter , **J.-F. Lamarque**, S.T. Massie and J. Gille. Carbon monoxide pollution from cities and urban areas observed by the Terra/MOPITT mission. Accepted for publication in *Geophys. Res. Lett*., 2007.
3. Pfister, G.G., L.K. Emmons, P.G. Hess, **J.-F. Lamarque**, J. Orlando, S. Walters, A. Guenther, P.I. Palmer, P. Lawrence. Contribution of isoprene to chemical budgets: A model tracer study with the NCAR CTM MOZART-4. Accepted for publication in *J. Geophys. Res*., 2007.
4. Textor, C., M. Schulz, S. Guibert, S. Kinne, Y. Balkanski, S. Bauer, T. Berntsen, T. Berglen, O. Boucher, M. Chin, F. Dentener, T. Diehl, J. Feichter, D. Fillmore, P. Ginoux, S. Gong, A. Grini, J. Hendricks, L. Horowitz, P. Huang, I. S. A. Isaksen, T. Iversen, S. Kloster, D. Koch, A. Kirkevåg, J. E. Kristjansson, M. Krol, A. Lauer, **J.-F. Lamarque**, X. Liu, V. Montanaro, G. Myhre, J. E. Penner, G. Pitari, S. Reddy, Ø. Seland, P. Stier, T. Takemura, and X. Tie, The effect of harmonized emissions on aerosol properties in global models - an AeroCom experiment. *Atmos. Chem. Physics,* 7, 6, 4489-4501, 2007.
5. Thornton, P. E., **J.-F. Lamarque**, N. A. Rosenbloom and N. Mahowald. Effects of terrestrial carbon-nitrogen cycle coupling on climate-carbon cycle dynamics. *Global Biogeochemical Cycles*, 21, GB4018, doi:10.1029/2006GB002868, 2007.
6. Hess, P. G. and **J.-F. Lamarque**, Ozone source attribution and its modulation by the Arctic Oscillation during the spring months. *J. Geophys. Res*., 112, D11303, doi:10.1029/2006JD007557, 2007.

7. Doney, S. C., N. Mahowald, I. Lima, R. A. Feely, F. T. Mackenzie, **J.-F. Lamarque**, and P. J. Rasch. The Impact of Anthropogenic Atmospheric Nitrogen and Sulfur Deposition on Ocean Acidification and the Inorganic Carbon System. Accepted for publication in *Proceedings of the National Academy of Science*, 2007.
8. Kinnison, D. E., G. P. Brasseur, S. Walters, R. R. Garcia, D. A. Marsh, F. Sassi, B. A. Boville, L. Harvey, C. Randall, L. Emmons, **J.-F. Lamarque**, P. Hess, J. Orlando, G. Tyndall, X. X. Tie, W. Randel, L. Pan, A. Gettelman, C. Granier, T. Diehl, U. Niemeier, and A. J. Simmons, Sensitivity of Chemical Tracers to Meteorological Parameters in the MOZART-3 Chemical Transport Model. *J. Geophys. Res*., 112, D20302, doi:10.1029/2006JD007879, 2007.
9. Horowitz, L. W., A. M. Fiore, G. P. Milly, R. C. Cohen, A. Perring, P. J. Wooldridge, P. G. Hess, L. K. Emmons, and **J.-F. Lamarque**, Observational constraints on the chemistry of isoprene nitrates over the eastern United States. Accepted for publication in *J. Geophys. Res*., 2007.
10. **Lamarque**, **J.-F.**, J. T. Kiehl and J. J. Orlando, The role of hydrogen sulfide in a Permian-Triassic Boundary ozone collapse. *Geophys. Res. Lett*., 34, L02801, doi:10.1029/2006GL028384, 2007.
11. Helmig, D., S. Oltmans, D. Carlson, **J.-F. Lamarque**, A. Jones, C. Labuschagne, K. Anlauf, and K. Hayden, A review of surface ozone in the polar regions. *Atmos. Environ.*, 41, 5138-5161, 2007.
12. Pfister, G.G., L.K. Emmons, P.G. Hess, R. Honrath, **J.-F. Lamarque**, M. Val Martin, R.C. Owen, M.A. Avery, E.V. Browell, J.S. Holloway, P. Nedelec, R. Purvis,T.B. Ryerson, G.W. Sachse, H. Schlager, Ozone Production from the 2004 North American Boreal Fires. *J. Geophys. Res*., Vol. 111, D24S07, doi:10.1029/2006JD007695, 2006.
13. Shindell, D.T., G. Faluvegi, D.S. Stevenson, L. K. Emmons, **J.-F. Lamarque**, G. Pétron, F.J. Dentener, K. Ellingsen, M. Amann, C.S. Atherton, N. Bell, D.J. Bergmann, I. Bey, T. Butler, J. Cofala, W.J. Collins, R.G. Derwent, R.M. Doherty, J. Drevet, H.J. Eskes, A.M. Fiore, M. Gauss, D.A. Hauglustaine, L.W. Horowitz, I.S.A. Isaksen, M.C. Krol, M.G. Lawrence, V. Montanaro, J.-F. Müller, G. Pitari, M.J. Prather, J.A. Pyle, S. Rast, J.M. Rodriguez, M.G. Sanderson, N.H. Savage, M.G. Schultz, S.E. Strahan, K. Sudo, S. Szopa, T.P.C. van Noije, O. Wild, and G. Zeng, Multi-model simulations of carbon monoxide: Comparison with observations and projected near-future changes. *J. Geophys. Res*., 111, D19306, doi:10.1029/2006JD007100, 2006.
14. Pradier, S., J.-L. Attié, M. Chong, J. Escobar, V.-H. Peuch, **J.-F. Lamarque**, B. Khattatov and D. Edwards. Evaluation of 2001 springtime CO transport over West Africa using MOPITT CO measurements assimilated in a global chemistry transport model. Tellus B 58 (3), 163-176. doi: 10.1111/j.1600-0889.2006.00185.x, 2006.
15. Granier, C., U. Niemeier, J. H. Jungclaus, L. Emmons, P. Hess, **J.-F. Lamarque**, S. Walters and G. P. Brasseur, Ozone pollution from future ship traffic in the Arctic Northern Passages. *Geophys. Res. Letters*, 33, L13807, doi:10.1029/2006GL026180, 2006.
16. **Lamarque, J.-F.**, J. T. Kiehl, C. A. Shields, B. A. Boville, and D. E. Kinnison, Modeling the response to changes in tropospheric methane concentration: application

to the Permian-Triassic boundary. *Paleoceanography*, 21, PA3006, doi:10.1029/2006PA001276, 2006.

17. van Noije, T. P. C., H. J. Eskes, F. J. Dentener, D. S. Stevenson, K. Ellingsen, M. G. Schultz, O. Wild, M. Amann, C. S. Atherton, D. J. Bergmann, I. Bey, K. F. Boersma, T. Butler, J. Cofala, J. Drevet, A. M. Fiore, M. Gauss, D. A. Hauglustaine, L. W. Horowitz, I. S. A. Isaksen, M. C. Krol, **J.-F. Lamarque**, M. G. Lawrence, R. V. Martin, V. Montanaro, J.-F. Müller, G. Pitari, M. J. Prather, J. A. Pyle, A. Richter, J. M. Rodriguez, N. H. Savage, S. E. Strahan, K. Sudo, S. Szopa, and M. van Roozendael, Multi-model ensemble simulations of tropospheric $NO_2$ compared with GOME retrievals for the year 2000. *Atmospheric Chemistry and Physics*, 6, 2943-2979, 2006.
18. Dentener, F., J. Drevet, **J.-F. Lamarque**, I. Bey, B. Eickhout, A. Fiore, D. Hauglustaine, L. Horowitz, M. Krol, U. Kuhlsherestha, M. Lawrence, C. Galy-Lacaux, S. Rast, D. Shindell, D. Stevenson, T. van Noije, C. Atherthon, N. Bell, D. Bergman, T. Butler, J. Cofala, W. Collins, R. Doherty, K. Ellingsen, J. Galloway, M. Gauss, V. Montanaro, J.-F. Müller, G. Pitari, J. Rodriguez, M. Sanderson, S. Strahan, M. Schultz, K. Sudo, S. Szopa, O. Wild. Nitrogen and sulphur deposition on regional and global scales: a multi-model evaluation, *Global Biogeochemical Cycles*, 20, GB4003, doi:10.1029/2005GB002672, 2006.
19. Dentener, F., D. Stevenson, K. Ellingsen, T. van Noije, M. Schultz, M. Amann, C. Atherton, N. Bell, D. Bergmann, I. Bey, L. Bouwman, T. Butler, J. Cofala, B. Collins, J. Drevet, R. Doherty, B. Eickhout, H. Eskes, A. Fiore, M. Gauss, D. Hauglustaine, L. Horowitz, I. Isaksen, B. Josse, M. Lawrence, M. Krol, **J.-F. Lamarque**, V. Montanaro, J.-F. Müller, V. H. Peuch, G. Pitari, J. Pyle, S. Rast, J. Rodriguez, M. Sanderson, N. Savage, D. Shindell, S. Strahan, S. Szopa, K. Sudo, O. Wild, and G. Zeng. Global air quality for the next generation, *Environmental Science and Technology*, 40, 3586-3594, 2006.
20. Mahowald, N. M., **J.-F. Lamarque**, X. X. Tie, E. Wolff, Sea-salt aerosol response to climate change: last glacial maximum, pre-industrial, and doubled-carbon dioxide climates. *J. Geophys. Res*., 111, D05303, doi:10.1029/2005JD006459, 2006.
21. Gauss, M., G. Myhre, I. S. A. Isaksen, W. J. Collins, F. J. Dentener, K. Ellingsen, L. K. Gohar, V. Grewe, D. A. Hauglustaine, D. Iachetti, **J.-F. Lamarque**, E. Mancini, L. J. Mickley, G. Pitari, M. J. Prather, J. A. Pyle, M. G. Sanderson, K. P. Shine, D. S. Stevenson, K. Sudo, S. Szopa, O. Wild,G. Zeng, Radiative forcing since preindustrial times due to ozone change in the troposphere and the lower stratosphere. *Atmos. Chem. Phys*., 6, 575-599, 2006.
22. Mouillot, F., C. Field, **J.-F. Lamarque** and Y. Balkanski, Fire history and the global carbon budget: 2. Carbon emissions from biomass burning during the 20$^{th}$ century. *Geophys. Res. Letters*, 33, L01801, doi:10.1029/2005GL024707, 2006.
23. Richards, N. A. D., Q. Li, K. W. Bowman, J. R. Worden, Susan S. Kulawik, G. B. Osterman, H. M. Worden, **J.-F. Lamarque** and B. V. Khattatov, Assimilation of TES CO into a global CTM: First results. *Atmos. Chem. Physics Discussion*, 11,727-11,743, 2006.
24. Textor, C., M. Schulz, S. Guibert, S. Kinne, Y. Balkanski, S. Bauer, T. Berntsen, T. Berglen, O. Boucher, M. Chin, F. Dentener, T. Diehl, R. Easter, H. Feichter, D. Fillmore, S. Ghan, P. Ginoux, S. Gong, A. Grini, J. Hendricks, L. Horowitz, P.

Huang, I. Isaksen, T. Iversen, S. Kloster, D. Koch, A. Kirkevåg, J. E. Kristjansson, M. Krol, A. Lauer, **J.-F. Lamarque**, X. Liu, V. Montanaro, G. Myhre, J. Penner, G. Pitari, S. Reddy, Ø. Seland, P. Stier, T. Takemura, X. Tie, Analysis and quantification of the diversities of aerosol life cycles within AeroCom. *Atmos. Chem. Phys.*, 5, 8331-8420, 2005

25. Kinne, S., M. Schulz, C. Textor, S. Guibert, Y. Balkanski, S.Bauer, T. Berntsen, T.Berglen, O.Boucher, M.Chin, W. Collins, F. Dentener, T. Diehl, R. Easter, H.Feichter, D.Fillmore, S. Ghan, P.Ginoux, S.Gong, A.Grini, J.Hendricks, M.Herzog, L.Horowitz, I.Isaksen, T.Iversen, A. Kirkevåg, S.Kloster, D.Koch, J. E. Kristjansson, M.Krol, A. Lauer, **J.-F. Lamarque**, G.Lesins, X.Liu, U.Lohmann, V.Montanaro, G.Myhre, J.Penner, G.Pitari, S.Reddy, O.Seland, P.Stier, T.Takemura, X.Tie, An AeroCom initial assessment – optical properties in aerosol component modules of global models. *Atmos. Chem. Phys.*, 5, 8285-8330, 2005.
26. Stevenson, D.S., F.J. Dentener, M.G. Schultz, K. Ellingsen, T. P.C. van Noije, O. Wild, G. Zeng, M. Amann, C.S. Atherton, N. Bell, D.J. Bergmann, I. Bey, T. Butler, J. Cofala, W.J. Collins, R.G. Derwent, R.M. Doherty, J. Drevet, H.J. Eskes, A.M. Fiore, M. Gauss, D.A. Hauglustaine, L.W. Horowitz, I.S.A. Isaksen, M.C. Krol, **J.-F. Lamarque**, M.G. Lawrence, V. Montanaro, J.-F. Müller, G. Pitari, M.J. Prather, J.A. Pyle, S. Rast, J.M. Rodriguez, M.G. Sanderson, N.H. Savage, D.T. Shindell, S.E. Strahan, K. Sudo, and S. Szopa, Multi-model ensemble simulations of present-day andnear-future tropospheric ozone. *J. Geophys. Res.*, 111, D08301, doi:10.1029/2005JD006338, 2005.
27. **Lamarque**, **J.-F.**, J. T. Kiehl, P. G. Hess, W. D. Collins, L. K. Emmons, P. Ginoux, C. Luo, and X. X. Tie, Response of a coupled chemistry-climate model to changes in aerosol emissions: Global impact on the hydrological cycle and the tropospheric burdens of OH, ozone and $NO_x$. *Geophys. Res. Lett.*, Vol. 32, No. 16, L16809, 2005.
28. **Lamarque, J.-F.,** J. Kiehl, G. Brasseur, T. Butler, P. Cameron-Smith, W. D. Collins, W. J. Collins, C. Granier, D. Hauglustaine, P. Hess, E. Holland, L. Horowitz, M. Lawrence, D. McKenna, P. Merilees, M. Prather, P. Rasch, D. Rotman, D. Shindell and P. Thornton, Assessing future nitrogen deposition and carbon cycle feedback using a multi-model approach. Analysis of nitrogen deposition. *J. Geophys. Res.*, 110, D19303, doi:10.1029/2005JD005825, 2005.
29. Pfister, G., P. Hess, L. Emmons, **J.-F. Lamarque**, C. Wiedenmyer, D. Edwards, G. Pétron, J. Gille, G. Sachse, Constraints on emissions for the Alaskan wildfires 2004 using data assimilation and inverse modeling of MOPITT CO. *Geophys. Res. Lett.*, 32, L11809, doi:10.1029/2005GL022995, 2005.
30. Laepple, T., M. Schultz, **J.-F. Lamarque**, S. Madronich. R.E. Shetter, B. Lefer and E. Atlas, Improved Albedo Formulation for Chemistry-Transport Models based on satellite observations and assimilated snow data and its impact on tropospheric photochemistry. *J. Geophys. Res.*, 110, No. D11, D11308 10.1029/2004JD005463, 2005.
31. **Lamarque, J.-F.**, P. Hess, L. Emmons, L. Buja, W. Washington and C. Granier, Tropospheric ozone evolution between 1890 and 1990. *J. Geophys. Res.*, 110, No. D8, D08304, doi:10.1029/2004JD005537, 2005.

32. Holland, E.A., B. H. Braswell, J. Sulzman, and **J.-F. Lamarque**, Nitrogen deposition onto the Unites States and Western Europe: A synthesis of observations and models. *Ecological Applications*, 15(1), 38-57, 2005.
33. Pétron G., C. Granier, B. Khattatov, V. Yudin, **J.-F. Lamarque**, L. Emmons, J. Gille and D. Edwards, Monthly CO surface sources inventory based on the 2000-2001 MOPITT satellite data. *Geophys. Res. Lett.*, 31, L21107, doi:10.1029/2004GL020560, 2004.
34. Yudin, V., G. Pétron, **J.-F. Lamarque**, B. Khattatov, P. Hess, L. Lyjak, J. Gille, D. Edwards, M. Deeter, L. Emmons, Assimilation of the 2000-2001 CO MOPITT retrievals with optimized surface emissions. *Geophys. Res. Lett.*, 31, L20105, doi:10.1029/2004GL021037, 2004.
35. Pfister, G., G. Pétron, L. K. Emmons, J. C. Gille, D. P. Edwards, **J.-F. Lamarque**, J.-L. Attié, C. Granier, and P. C. Novelli, Evaluation of CO Simulations and the Analysis of the CO Budget for Europe. *J. Geophys. Res.*, 109, D19304, doi:10.1029/2004JD004691, 2004.
36. Edwards, D. P., L. K. Emmons, D. A. Hauglustaine, A. Chu, J. C. Gille, Y. J. Kaufman, G. Pétron, L. N. Yurganov, L. Giglio, M. N. Deeter, V. Yudin, D. C. Ziskin, J. Warner, **J. -F. Lamarque**, G. L. Francis, S. P. Ho, D. Mao, J. Chen, E. I. Grechko, and J. R. Drummond, Observations of Carbon Monoxide and Aerosol From the Terra Satellite: Northern Hemisphere Variability. *J. Geophys. Res.*, 109, D24202, doi:10.1029/2004JD004727, 2004.
37. **Lamarque, J.-F.**, B. Khattatov, V. Yudin, D. P. Edwards, J. C. Gille, L.K. Emmons, M.N. Deeter, J. Warner, D.C. Ziskin, G.L. Francis, S. Ho, D. Mao, J. Chen, and J. R. Drummond, Application of a bias estimator for the improved assimilation of MOPITT carbon monoxide retrievals. *J. Geophys. Res.*, 109, D16304, doi:10.1029/2003JD004466, 2004.
38. **Lamarque, J.-F.** and P. G. Hess, Arctic Oscillation modulation of the Northern Hemisphere spring tropospheric ozone. *Geophys. Res. Letters*, 31, L06127, doi:10.1029/2003GL019116, 2004.
39. Hauglustaine, D. A., F. Hourdin, L. Jourdain, M.-A. Filiberti, S. Walters, **J.-F. Lamarque**, and E. A. Holland, Interactive chemistry in the Laboratoire de Météorologie Dynamique general circulation model: description and background tropospheric chemistry evaluation. *J. Geophys. Res.,* 109, D04314, doi:10.1029/2003JD003957, 2004.
40. Deeter, M. N., Emmons, L. K. Francis, G. L., Edwards, D. P., Gille, J. C., Warner, J. X., Khattatov, B., Ziskin, D., **Lamarque, J.-F.**, Ho, S.-P., Yudin, V., Attie, J.-L., Packman, D., Chen, J., Mao, D., Drummond, James R., Novelli, Paul, Sachse, Glen, Evaluation of operational radiances for the Measurements of Pollution in the Troposphere (MOPITT) instrument CO thermal band channels, *J. Geophys. Res.*, 109(D3), D03308, doi:10.1029/2003JD003970, 2004.
41. Emmons, L.K., M.N. Deeter, J.C. Gille, D.P. Edwards, J.-L. Attie, J. Warner, D. Ziskin, G. Francis, B. Khattatov, V. Yudin, **J.-F. Lamarque**, S.-P. Ho, D. Mao, J.S. Chen, J. Drummond, P. Novelli, G. Sachse, M.T. Covey, J.W. Hannigan, C.,Gerbig, S. Kawakami, Y. Kondo, N. Takegawa, H. Schlager, J. Baehr, H. Ziereis, Validation of MOPITT CO retrievals with aircraft in situ profiles. *J. Geophys. Res.*, 109(D3), D03309, doi:10.1029/2003JD004101, 2004.

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1. Lamarque, J.-F., and P.G. Hess, Stratosphere-troposphere exchange: local processes, in *Encyclopedia of Atmospheric Sciences*, Ed. J. Holton, Academic Press, 2002.

**Non-refereed Publications**

1. Khattatov, B.V., J.-F. Lamarque, G. P. Brasseur, G. Tyndall, and J. Orlando, Introduction to atmospheric photochemical modeling, in *Data Assimilation for the*

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**Publications in Review**

1. Heald, C.L., D.K. Henze, L.W. Horowitz, J. Feddema, **J.-F. Lamarque**, A. Guenther, P.G. Hess, F. Vitt, J.H. Seinfeld, A.H. Goldstein and I. Fung, Predicted change in global secondary organic aerosol concentrations in response to future climate, emissions, and land-use change. Submitted for publication in *J. Geophys. Res*., 2007.
2. Shindell, D. T., H. Levy II, M. D. Schwarzkopf, L. W. Horowitz, **J.-F. Lamarque**, G. Faluvegi, Multi-model Projections of Climate Change From Short-lived Emissions Due To Human Activities. Submitted for publication in *J. Geophys. Res*., 2007.
3. Kirk-Davidoff, D. and **J.-F. Lamarque**, Maintenance of polar stratospheric clouds in a moist stratosphere. Submitted for publication in *Climate of the Past*, 2007.
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