

Michael Ghil

BIBLIOGRAPHY

23 May 2016

A. Books Published

1. Bengtsson, L., **M. Ghil**, and E. Källén (Eds.), 1981: *Dynamic Meteorology: Data Assimilation Methods*, Springer-Verlag, New York/Heidelberg/Berlin, 330 pp.
2. Chang, C. P., **M. Ghil**, M. Latif, and J. M. Wallace (Eds.), 2015: *Climate Change: Multidecadal and Beyond*, World Scientific Publ. Co./Imperial College Press, 388 pp.
3. Chavez, M., **M. Ghil** and J. Urrutia Fucugauchi, Eds., 2015: *Extreme Events: Observations, Modeling and Economics*, Geophysical Monograph 214, American Geophysical Union & Wiley, 438 pp.
4. **Ghil, M.**, R. Benzi, and G. Parisi (Eds.), 1985: *Turbulence and Predictability in Geophysical Fluid Dynamics and Climate Dynamics*, North-Holland Publ. Co., Amsterdam/New York/Oxford/ Tokyo, 449 pp.
5. **Ghil, M.**, and S. Childress, 1987: *Topics in Geophysical Fluid Dynamics: Atmospheric Dynamics, Dynamo Theory and Climate Dynamics*, Springer-Verlag, New York/Berlin/London/Paris/ Tokyo, 485 pp.
6. **Ghil, M.**, K. Ide, A. F. Bennett, P. Courtier, M. Kimoto, and N. Sato (Eds.), 1997: *Data Assimilation in Meteorology and Oceanography: Theory and Practice*, Meteorological Society of Japan and Universal Academy Press, Tokyo, 496 pp.
7. **Ghil, M.**, and J. Roux, 2010: *Mathématiques Appliquées aux Sciences de la Vie et de la Planète*, Dunod, Paris, 392 pp. + supplementary online material.
8. **Ghil, M.**, M. D. Chekroun, and G. Stepan (Eds.), 2015: A Collection on "Climate Dynamics: Multiple Scales and Memory Effects," Editorial + six papers, *R. Soc. Proc. A*, vols. **470** + **471**.
9. **Ghil, M.**, A. Haraux and J. Roux, 2016: *Applied Mathematics for the Environmental Sciences*, Springer, in preparation.
10. **Ghil, M.**, and J.J. Tribbia, 2016: *Nonlinear Climate Theory*, Cambridge Univ. Press, Cambridge, UK/London/New York, approx. 450 pp., in preparation.

B. Collective Works

1. Panel on Model-Assimilated Data Sets (D.R. Johnson, J.R. Bates, G.P. Brasseur, **M. Ghil**, A. Hollingsworth, R.L. Jenne, K. Miyakoda, E. Rasmusson, E.S. Sarachik, and T.T. Warner), National Research Council, 1991: *Four-Dimensional Model Assimilation of Data: A Strategy for the Earth System Sciences*, National Academy Press, Washington, D.C., 78 pp.
2. Climate Research Committee (E.J. Barron, B. Boville, K. Bryan, G.F. Carrier, W.L. Chameides, R. Dickinson, **M. Ghil**, D.G. Martinson, W.R. Peltier, J. Sarmiento, G.L. Stephens, L.D. Talley, K. Trenberth, and J. Walsh), 1992: *A Decade of International Climate Research: The First Ten Years of the World Climate Research Program*, National Academy Press, Washington, D.C., 59 pp.
3. Climate Research Committee (E.J. Barron, D.S. Battisti, B.A. Boville, K. Bryan, G.F. Carrier, R. D. Cess, R.E. Davis, **M. Ghil**, M.M. Hall, T.R. Karl, J.T. Kiehl, D.G. Martinson, C.L. Parkinson, B. Saltzman, R.P. Turco), 1994: *Global Ocean–Atmosphere–Land System (GOALS) for Predicting Seasonal-to-Interannual Climate*, National Academy Press, Washington, D.C., 103 pp.
4. **Ghil, M.**, K. Ide, and Numerical Prediction Division (Japan Meteorological Agency) (Eds.), 1995: Collection of Lecture Notes Presented at the Second WMO International Symposium on Assimilation of Observations in Meteorology and Oceanography, Special Issue, *The Geophysical Magazine, Series 2, 1*, Japan Meteorological Agency, Tokyo.
5. International Programme Committee (D. L. T. Anderson, A. F. Bennett, P. Courtier, R. Daley, **M. Ghil**, Chair; K. Ide, Secretary; M. Kubota, K. Puri, P. Malanotte-Rizzoli, N. Sato, O. Talagrand,

- Eds.), 1995: *Proceedings of the Second WMO International Symposium on Assimilation of Observations in Meteorology and Oceanography, Tokyo, March 1995*, WMO/TD–No. 651, PWPR Report Series No. 5, World Meteorological Organization, Geneva, Switzerland, Vols. I & II, 717 pp.
6. National Research Council, 1995: *Natural Climate Variability on Decade-to-Century Time Scales*, D. G. Martinson, K. Bryan, **M. Ghil**, M. M. Hall, T. R. Karl, E. S. Sarachik, S. Sorooshian, and L. D. Talley (Eds.), National Academy Press, Washington, D.C., 630 pp.
 7. Panel on Climate Variability on Decade-to-Century Time Scales (D.G. Martinson, D.S. Battisti, R.S. Bradley, J. E. Cole, R.A. Fine, **M. Ghil**, Y. Kushnir, S. Manabe, M.S. McCartney, M.P. McCormick, M.J. Prather, E. S. Sarachik, P. Tans, L.G. Thompson, M. Winton), National Research Council, 1998: *Decade-to-Century-Scale Climate Variability and Change: A Science Strategy*, 160 pp.
 8. Bresch, D., T. Colin, **M. Ghil**, and S. Wang (Eds.), 2004: *Qualitative Properties of Some Evolution Equations*, Special Issue of *Discrete and Continuous Dynamical Systems–Series A*, **vol. 11** (No. 1), pp. 1–240, American Institute of Mathematical Sciences.

C. Refereed Articles and Chapters in Books

1. **Ghil, M.**, 1971: Heat transfer from the rear of a cylinder in transverse flow, Discussion, *J. Heat Transfer, Trans. ASME, Series C*, **93**, 316.
2. **Ghil, M.**, and A. Solan, 1973: Heat transfer through a Rankine vortex, *J. Heat Transfer, Trans. ASME, Series C*, **95**, 137–139.
3. **Ghil, M.**, 1975: The initialization problem in numerical weather prediction, *Improperly Posed Boundary Value Problems*, A. Carasso and A. P. Stone (Eds.), Pitman, London, pp. 105–123.
4. **Ghil, M.**, 1976: Climate stability for a Sellers-type model, *J. Atmos. Sci.*, **33**, 3–20.
5. **Ghil, M.**, and B. Shkoller, 1976: Wind laws for shockless initialization, *Ann. Meteorol. (Neue Folge)*, **11**, 112–115.
6. **Ghil, M.**, B. Shkoller, and V. Yangarber, 1977: A balanced diagnostic system compatible with a barotropic prognostic model, *Mon. Wea. Rev.*, **105**, 1223–1238.
7. **Ghil, M.**, 1977: Numerical methods in fluid mechanics, *Fluid Dynamics*, R. Balian and J.-L. Peube (Eds.), Gordon and Breach, London, pp. 447–468.
8. Talagrand, O., D. Anderson, and **M. Ghil**, 1977: Eléments de météorologie dynamique, *Fluid Dynamics*, R. Balian and J.-L. Peube (Eds.), Gordon and Breach, London, pp. 641–666.
9. Halem, M., **M. Ghil**, and R. Atlas, 1978: Some experiments on the effect of remote sounding data upon weather forecasting, *Remote Sensing of the Atmosphere-Inversion Methods and Applications*, A. L. Fymat and V. E. Zuev (Eds.), Elsevier, pp. 9–33.
10. **Ghil, M.**, 1978: Numerical methods in geophysical fluid dynamics, *Rotating Fluids in Geophysics*, P. H. Roberts and A. M. Soward (Eds.), Academic Press, pp. 499–521.
11. Källén, E., C. Crafoord, and **M. Ghil**, 1978: Free oscillations in a coupled atmosphere-hydrosphere-cryosphere system, *Evolution of Planetary Atmospheres and Climatology of the Earth*, D. Gautier *et al.* (Eds.), Centre National d'Etudes Spatiales, Toulouse, France, pp. 285–298.
12. Bhattacharya, K., and **M. Ghil**, 1978: An energy-balance model with multiply-periodic and quasi-chaotic free oscillations, *Evolution of Planetary Atmospheres and Climatology of the Earth*, D. Gautier *et al.* (Eds.), Centre National d'Etudes Spatiales, Toulouse, France, pp. 299–310.
13. **Ghil, M.**, M. Halem, and R. Atlas, 1979: Time-continuous assimilation of remote-sounding data and its effect on weather forecasting, *Mon. Wea. Rev.*, **107**, 140–171.
14. **Ghil, M.**, and R. Balgovind, 1979: A fast Cauchy-Riemann solver, *Math. Comp.*, **33**, 585–635.
15. **Ghil, M.**, M. Halem, and R. Atlas, 1979: Effects of sounding temperature assimilation on weather forecasting: Model dependence studies, *Remote Sounding of the Atmosphere from Space*, H.-J. Bolle (Ed.), Pergamon Press, pp. 21–25.
16. Källén, E., C. Crafoord and **M. Ghil**, 1979: Free oscillations in a climate model with ice-sheet dynamics, *J. Atmos. Sci.*, **36**, 2292–2303.

17. **Ghil, M.** and K. Bhattacharya, 1979: An energy-balance model of glaciation cycles, *Study Conference on Climate Models: Performance, Intercomparison and Sensitivity Studies*, W. L. Gates (Ed.), GARP Publ. Series No. 22, WMO/ICSU, Geneva, pp. 886–916.
18. **Ghil, M.**, 1980: Successive bifurcations and the ice-age problem, *Bifurcation Phenomena in Mathematical Physics and Related Topics*, C. Bardos and D. Bessis (Eds.), D. Reidel, Dordrecht/Boston/London, pp. 57–58.
19. **Ghil, M.**, 1980: The compatible balancing approach to initialization, and four-dimensional data assimilation, *Tellus*, **32**, 198–206.
20. **Ghil, M.**, 1981: Energy-balance models: an introduction, *Climatic Variations and Variability: Facts and Theories*, A. Berger (Ed.), D. Reidel, Dordrecht/Boston/London, pp. 461–480.
21. **Ghil, M.**, 1981: Internal climatic mechanisms participating in glaciation cycles, *Climatic Variations and Variability: Facts and Theories*, A. Berger (Ed.), D. Reidel, Dordrecht/Boston/London, pp. 539–557.
22. **Ghil, M.**, 1981: Comments on 'Seasonal Simulation as a Test for Uncertainties in the Parameterizations of a Budyko-Sellers Zonal Climate Model,' by S. H. Schneider and S. G. Warren, *J. Atmos. Sci.*, **38**, 666–667.
23. Atlas, R., **M. Ghil**, and M. Halem, 1981: Reply to comments by L. Druyan on 'Time-Continuous Assimilation of Remote-Sounding Data and Its Effect on Weather Forecasting,' *Mon. Wea. Rev.*, **109**, 201–204.
24. Bube, K., and M. Ghil, 1981: Assimilation of asynoptic data and the initialization problem, *Dynamic Meteorology: Data Assimilation Methods*, L. Bengtsson, M. Ghil and E. Källén (Eds.), Springer-Verlag, New York, pp. 111–138.
25. **Ghil, M.**, S. Cohn, J. Tavantzis, K. Bube, and E. Isaacson, 1981: Applications of estimation theory to numerical weather prediction, *Dynamic Meteorology: Data Assimilation Methods*, L. Bengtsson, M. Ghil and E. Källén (Eds.), Springer Verlag, pp. 139–224.
26. **Ghil, M.**, and H. Le Treut, 1981: A climate model with cryodynamics and geodynamics, *J. Geophys. Res.*, **86**, 5262–5270.
27. Atlas, R., **M. Ghil**, and M. Halem, 1982: The effects of model resolution and satellite sounding data on GLAS model forecasts, *Mon. Wea. Rev.*, **110**, 662–682.
28. **Ghil, M.**, S. E. Cohn, and A. Dalcher, 1982: Sequential estimation, data assimilation and initialization, *The Interaction Between Objective Analysis and Initialization*, D. Williamson (Ed.), Publ. Meteorol. 127 (Proc. 14th Stanstead Seminar), McGill University, Montreal, pp. 83–97.
29. Bhattacharya, K., **M. Ghil**, and I. L. Vulis, 1982: Internal variability of an energy-balance model with delayed albedo effects, *J. Atmos. Sci.*, **39**, 1747–1773.
30. Balgovind, R., A. Dalcher, **M. Ghil**, and E. Kalnay, 1983: A stochastic-dynamic model for the spatial structure of forecast error statistics, *Mon. Wea. Rev.*, **111**, 701–722.
31. Le Treut, H., and **M. Ghil**, 1983: Orbital forcing, climatic interactions, and glaciation cycles, *J. Geophys. Res.*, **88C**, 5167–5190.
32. **Ghil, M.**, and J. Tavantzis, 1983: Global Hopf bifurcation in a simple climate model, *SIAM J. Appl. Math.*, **43**, 1019–1041.
33. **Ghil, M.**, S. E. Cohn, and A. Dalcher, 1983: Applications of sequential estimation to data assimilation, *Large-Scale Oceanographic Experiments in the World Climate Research Program*, WMO/ICSU, Geneva, Switzerland, pp. 341–356.
34. Legras, B., and **M. Ghil**, 1983: Ecoulements atmosphériques stationnaires, périodiques et apériodiques, *J. Méc. Théor. Appl.*, Special Issue (*Two-Dimensional Turbulence*, R. Moreau (Ed.)), Gauthier-Villars, Paris), 45–82.
35. **Ghil, M.**, 1984: Climate sensitivity, energy balance models and oscillatory climate models, *J. Geophys. Res.*, **89**, 1280–1284.
36. **Ghil, M.**, 1984b: Formal conceptual models of climatic change. *Terra Cognita.*, **4**, 336.
37. Dee, D., and **M. Ghil**, 1984: Boolean difference equations, I: Formulation and dynamic behavior, *SIAM J. Appl. Math.*, **44**, 111–126.

38. Legras, B., and **M. Ghil**, 1984: Blocking and variations in atmospheric predictability, *Predictability of Fluid Motions*, G. Holloway and B. J. West (Eds.), American Institute of Physics, New York, pp. 87–105.
39. Buys, M., and **M. Ghil**, 1984: Mathematical methods of celestial mechanics illustrated by simple examples of planetary motion, *Milankovitch and Climate: Understanding the Response to Orbital Forcing*, A. Berger, J. Imbrie, J. Hays, G. Kukla and B. Saltzman (Eds.), D. Reidel, Dordrecht/Boston/Lancaster, pp. 55–82.
40. **Ghil, M.**, and B. Saltzman, 1984: Oscillator models of climate change, *Milankovitch and Climate: Understanding the Response to Orbital Forcing*, A. Berger, J. Imbrie, J. Hays, G. Kukla and B. Saltzman (Eds.), D. Reidel, Dordrecht/Boston/Lancaster, pp. 859–866.
41. LeTreut, H., and **M. Ghil**, 1984: The predictability of glaciation cycles, *Annals Glaciol.*, **5**, 213–214.
42. **Ghil, M.**, R. Benzi, and G. Parisi, 1985: Introduction: turbulence, geophysical flows, predictability and climate dynamics, *Turbulence and Predictability in Geophysical Fluid Dynamics and Climate Dynamics*, M. Ghil, R. Benzi and G. Parisi (Eds.), North Holland Publ. Co., Amsterdam/New York/Oxford/Tokyo, pp. xiii–xxi.
43. **Ghil, M.**, 1985: Theoretical climate dynamics: an introduction, *Turbulence and Predictability in Geophysical Fluid Dynamics and Climate Dynamics*, M. Ghil, R. Benzi and G. Parisi (Eds.), North Holland Publ. Co., Amsterdam/New York/Oxford/Tokyo, pp. 347–402.
44. Legras, B., and **M. Ghil**, 1985: Persistent anomalies, blocking and variations in atmospheric predictability, *J. Atmos. Sci.*, **42**, 433–471.
45. **Ghil, M.**, and A. Mullhaupt, 1985: Boolean delay equations, II: Periodic and aperiodic solutions, *J. Stat. Phys.*, **41**, 125–174.
46. Dee, D., S. E. Cohn, A. Dalcher, and **M. Ghil**, 1985: An efficient algorithm for estimating covariances in distributed systems, *IEEE Trans. Automatic Control*, **AC-30**, 1057–1065.
47. **Ghil, M.**, 1985: Future possibilities in objective analysis and data assimilation for atmospheric dynamics, *Proc. First National Workshop on the Global Weather Experiment*, vol. II, part II, National Academy Press, Washington, D.C., pp. 794–802.
48. **Ghil, M.**, 1985: Mathematical problems in climate dynamics, *Mathematical Problems from the Physics of Fluids*, G. Gallavotti *et al.* (Eds.), Klim, Roma, pp. 65–81; also published in *J. Stat. Phys.*, **44** (5-6), 1026–1032 (Sept. 1986).
49. **Ghil, M.**, 1986: Sequential estimation and satellite data assimilation in meteorology and oceanography, *Variational Methods in the Geosciences*, Y. Sasaki *et al.* (Eds.), Elsevier, Amsterdam, pp. 91–100.
50. **Ghil, M.**, 1987a: Dynamics, statistics and predictability of planetary flow regimes, *Irreversible Phenomena and Dynamical Systems Analysis in the Geosciences*, C. Nicolis and G. Nicolis (Eds.), D. Reidel, Dordrecht/Boston/Lancaster, pp. 241–283.
51. **Ghil, M.**, 1987b: Nonlinear phenomena in climate dynamics, *Irreversible Phenomena and Dynamical Systems Analysis in the Geosciences*, C. Nicolis and G. Nicolis (Eds.), D. Reidel, Dordrecht/Boston/Lancaster, pp. 313–320.
52. Mo, K., and **M. Ghil**, 1987: Statistics and dynamics of persistent anomalies, *J. Atmos. Sci.*, **44**, 877–901.
53. **Ghil, M.**, A. Mullhaupt and P. Pestiaux, 1987: Deep water formation and Quaternary glaciations, *Climate Dyn.*, **2**, 1–10.
54. Atlas, R., A. J. Busalacchi, **M. Ghil**, S. Bloom, and E. Kalnay, 1987: Global surface wind and flux fields from model assimilation of Seasat data, *J. Geophys. Res.*, **92C**, 6477–6487.
55. **Ghil, M.**, 1987c: Predictability of planetary flow regimes: dynamics and statistics, *Toward Understanding Climate Change, the J. O. Fletcher Lectures on Problems and Prospects of Climate Analysis and Forecasting*, U. Radok (Ed.), pp. 91–147.
56. Itoh, H., and **M. Ghil**, 1988: The generation mechanism of mixed Rossby-gravity waves in the equatorial troposphere, *J. Atmos. Sci.*, **45**, 585–604.
57. Le Treut, H., J. Portes, J. Jouzel, and **M. Ghil**, 1988: Isotopic modeling of climatic oscillations:

- implications for a comparative study of marine and ice-core records, *J. Geophys. Res.*, **93**, 9365–9383.
58. **Ghil, M.**, 1988: Nonlinear approaches to low-frequency atmospheric variability, *Dynamics of Low-Frequency Phenomena in the Atmosphere*, G. W. Branstator, R. A. Madden and J. J. Tribbia (Eds.), National Center for Atmospheric Research, Boulder, CO 80307, pp. 603–714; also in *Proc. Summer School on Large-Scale Dynamics of the Atmosphere*, Q.-C. Zeng (Ed.), Beijing, China, 1988.
 59. Mo, K., and **M. Ghil**, 1988: Cluster analysis of multiple planetary flow regimes, *J. Geophys. Res.*, **93D**, 10927–10952.
 60. Lin, R.-Q., F. Busse, and **M. Ghil**, 1989: Transition to two-dimensional turbulent convection in a rapidly-rotating annulus, *Geophys. Astrophys. Fluid Dyn.*, **45**, 131–157.
 61. **Ghil, M.**, 1989: Meteorological data assimilation for oceanographers. Part I: Description and theoretical framework, *Dyn. Atmos. Oceans*, **13**, 171–218.
 62. Vautard, R., and **M. Ghil**, 1989: Singular spectrum analysis in nonlinear dynamics, with applications to paleoclimatic time series, *Physica D*, **35**, 395–424.
 63. Farrara, J. D., **M. Ghil**, C. R. Mechoso, and K. C. Mo, 1989: Empirical orthogonal functions and multiple flow regimes in the Southern Hemisphere winter, *J. Atmos. Sci.*, **46**, 3219–3223.
 64. **Ghil, M.**, 1989: Deceptively-simple models of climatic change, *Climate and Geo-Sciences*, A. Berger, J.-Cl. Duplessy and S. H. Schneider (Eds.), D. Reidel, Dordrecht/Hingham (Mass.), pp. 211–240.
 65. Sakuma, H., and **M. Ghil**, 1990: Stability of stationary barotropic modons by Lyapunov's direct method, *J. Fluid Mech.*, **211**, 393–416.
 66. Dickey, J. O., **M. Ghil** and S. L. Marcus, 1990: A 30-60 day oscillation in length-of-day and atmospheric angular momentum: extratropical origin?, *Earth Rotation and Coordinate Reference Frames*, C. Boucher and G. A. Wilkins (Eds.), Springer-Verlag, New York, pp. 90–97.
 67. Marcus, S. L., **M. Ghil**, J. O. Dickey, and T. M. Eubanks, 1990: Origin of the 30-60 day oscillation in the LOD and atmospheric angular momentum: new findings from the UCLA general circulation model, *Earth Rotation and Coordinate Reference Frames*, C. Boucher and G. A. Wilkins (Eds.), Springer-Verlag, New York, pp. 98–105.
 68. Paldor, N., and **M. Ghil**, 1990: Finite-wavelength instabilities of a coupled density front, *J. Phys. Oceanogr.*, **20**, 114–123.
 69. Vautard, R., K. C. Mo, and **M. Ghil**, 1990: Statistical significance test for transition matrices of atmospheric Markov chains, *J. Atmos. Sci.*, **47**, 1926–1931.
 70. Jin, F.-f., and **M. Ghil**, 1990: Intraseasonal oscillations in the extratropics: Hopf bifurcation and topographic instabilities, *J. Atmos. Sci.*, **47**, 3007–3022.
 71. Bernardet, P., A. Butet, M. Déqué, **M. Ghil** and R. L. Pfeffer, 1990: Low-frequency oscillations in a rotating annulus with topography, *J. Atmos. Sci.*, **47**, 3023–3043.
 72. **Ghil, M.**, M. Kimoto, and J. D. Neelin, 1991: Nonlinear dynamics and predictability in the atmospheric sciences, *Rev. Geophys., Supplement* (U.S. Nat'l Rept. to Int'l Union of Geodesy & Geophys. 1987–1990), **29** (S), 46–55, 10.1029/91RG0071.
 73. **Ghil, M.**, and R. Vautard, 1991: Interdecadal oscillations and the warming trend in global temperature time series, *Nature*, **350**, 324–327.
 74. **Ghil, M.**, and K.-C. Mo, 1991a: Intraseasonal oscillations in the global atmosphere. Part I: Northern Hemisphere and tropics, *J. Atmos. Sci.*, **48**, 752–779.
 75. **Ghil, M.**, and K.-C. Mo, 1991b: Intraseasonal oscillations in the global atmosphere. Part II: Southern Hemisphere, *J. Atmos. Sci.*, **48**, 780–790.
 76. Keppenne, C. L., **M. Ghil**, G. C. Fox, J. W. Flower, A. Kowala, P. N. Papaccio, J. F. Rosati, J. F. Shepanski, F. G. Spadaro, J. O. Dickey, 1991: Parallel processing applied to climate modeling, *Controlled Active Global Experiments (CAGE)*, E. Sindoni and A.Y. Wong (Eds.), Società Italiana di Fisica, Bologna, pp. 47–66.
 77. Sakuma, H., and **M. Ghil**, 1991: Stability of propagating modons for small-amplitude perturbations, *Phys. Fluids A*, **3**(3), 408–414.
 78. **Ghil, M.**, and P. Malanotte-Rizzoli, 1991: Data assimilation in meteorology and oceanography,

- Adv. Geophys.*, **33**, 141–266.
79. Paldor, N. and **M. Ghil**, 1991: Shortwave instabilities of coastal currents, *Geophys. Astrophys. Fluid Dyn.*, **58**, 225–241.
 80. Mechoso, C. R., J. D. Farrara, and **M. Ghil**, 1991: Intraseasonal variability of the winter circulation in the Southern Hemisphere atmosphere. *J. Atmos. Sci.*, **48**, 1387–1404.
 81. **Ghil, M.**, 1991: Quaternary glaciations: Theory and observations, *The Sun in Time*, C. P. Sonnett, M. S. Giampapa, and M. S. Matthews (Eds.), The Univ. of Arizona Press, Tucson, pp. 511–542.
 82. Yiou, P., C. Genthon, **M. Ghil**, J. Jouzel, H. Le Treut, J. M. Barnola, C. Lorius, and Y. N. Korotkevitch, 1991: High-frequency paleovariability in climate and CO₂ levels from Vostok ice-core records, *J. Geophys. Res.*, **96**, 20365–20378.
 83. Penland, C., **M. Ghil**, and K. M. Weickmann, 1991: Adaptive filtering and maximum entropy spectra, with application to changes in atmospheric angular momentum, *J. Geophys. Res.*, **96**, 22659–22671.
 84. Dickey, J. O., **M. Ghil**, and S. L. Marcus, 1991: Extratropical aspects of the 40–50 day oscillation in length-of-day and atmospheric angular momentum, *J. Geophys. Res.*, **96**, 22643–22658.
 85. Zhao, J.-X., and **M. Ghil**, 1991: Nonlinear symmetric instability and intraseasonal oscillations in the tropical atmosphere, *J. Atmos. Sci.*, **48**, 2552–2568.
 86. Sakuma, H., and **M. Ghil**, 1992: Reply to comments by P. Ripa, *Phys. Fluids A*, **4**, 464–466.
 87. **Ghil, M.**, and C. R. Mechoso, 1992: Data assimilation and predictability studies for the coupled ocean-atmosphere system, *Oceanography*, **5**, 19–24.
 88. **Ghil, M.**, and G. Wolansky, 1992: Non-Hamiltonian perturbations of integrable systems and resonance trapping, *SIAM J. Appl. Math.*, **52**, 1148–1171.
 89. Keppenne, C. L., and **M. Ghil**, 1992a: Extreme weather events, *Nature*, **358**, 547.
 90. Keppenne, C. L., and **M. Ghil**, 1992b: Adaptive filtering and prediction of the Southern Oscillation index, *J. Geophys. Res.*, **97**, 20449–20454.
 91. Neelin, J. D., M. Latif, M. A. F. Allaart, M. A. Cane, U. Cubasch, W. L. Gates, P. R. Gent, **M. Ghil**, C. Gordon, N. C. Lau, C. R. Mechoso, G. A. Meehl, J. M. Oberhuber, S. G. H. Philander, P. S. Schopf, K. R. Sperber, A. Sterl, T. Tokioka, J. Tribbia, and S. E. Zebiak, 1992: Tropical air-sea interaction in general circulation models, *Climate Dyn.*, **7**, 73–104.
 92. Quon, C., and **M. Ghil**, 1992: Multiple equilibria in thermosolutal convection due to salt-flux boundary conditions, *J. Fluid Mech.*, **245**, 449–483.
 93. Vautard, R., P. Yiou, and **M. Ghil**, 1992: Singular-spectrum analysis: A toolkit for short, noisy chaotic signals, *Physica D*, **58**, 95–126.
 94. Feliks, Y., and **M. Ghil**, 1993: Downwelling-front instability and eddy formation in the Eastern Mediterranean, *J. Phys. Oceanogr.*, **23**, 61–78.
 95. Kimoto, M., and **M. Ghil**, 1993a: Multiple flow regimes in the Northern Hemisphere winter. Part I: Methodology and hemispheric regimes, *J. Atmos. Sci.*, **50**, 2625–2643.
 96. Kimoto, M., and **M. Ghil**, 1993b: Multiple flow regimes in the Northern Hemisphere winter. Part II: Sectorial regimes and preferred transitions, *J. Atmos. Sci.*, **50**, 2645–2673.
 97. Strong, C. M., F.-f. Jin and **M. Ghil**, 1993: Intraseasonal variability in a barotropic model with seasonal forcing, *J. Atmos. Sci.*, **50**, 2965–2986.
 98. Penland, C., and **M. Ghil**, 1993: Forecasting Northern Hemisphere 700-mb geopotential height anomalies using empirical normal modes, *Mon. Wea. Rev.*, **121**, 2355–2372.
 99. Birchfield, G. E., and **M. Ghil**, 1993: Climate evolution in the Pliocene and Pleistocene from marine-sediment records and simulations: Internal variability versus orbital forcing, *J. Geophys. Res.*, **98D**, 10385–10399.
 100. Jiang, S., and **M. Ghil**, 1993: Dynamical properties of error statistics in a shallow-water model, *J. Phys. Oceanogr.*, **23**, 2541–2566.
 101. Yiou, P., and **M. Ghil**, 1993: Nonlinear paleoclimatic variability from Quaternary records. In *Ice in the Climate System*, W. R. Peltier (Ed.), Springer-Verlag, Heidelberg, pp. 557–577.

102. Keppenne, C. L., and **M. Ghil**, 1993: Adaptive filtering and prediction of noisy multivariate signals: An application to subannual variability in atmospheric angular momentum, *Intl. J. Bifurcation & Chaos*, **3**, 625–634.
103. Liu, W., **M. Ghil**, J. D. Neelin, and C. A. Hall, Jr., 1993: A simple coastal ocean model for the Central California Basin during late Miocene, *Paleoceanogr.*, **8**, 799–810.
104. Paillard, D., **M. Ghil** and H. Le Treut, 1993: Dissolved organic matter and the glacial-interglacial pCO₂ problem, *Global Biogeochem. Cycles*, **7**, 901–914.
105. Todling, R., and **M. Ghil**, 1994: Tracking atmospheric instabilities with the Kalman filter. Part I: Methodology and one-layer results, *Mon. Wea. Rev.*, **122**, 183–204.
106. Yiou, P., **M. Ghil**, J. Jouzel, D. Paillard and R. Vautard, 1994: Nonlinear variability of the climatic system, from singular and power spectra of late Quaternary records, *Climate Dyn.*, **9**, 371–389.
107. Miller, R. N., **M. Ghil** and F. Gauthiez, 1994: Advanced data assimilation in strongly nonlinear dynamical systems, *J. Atmos. Sci.*, **51**, 1037–1056.
108. **Ghil, M.**, and K. Ide, 1994: Extended Kalman filtering for vortex systems: An example of observing-system design, *Data Assimilation for Modelling the Ocean in a Global Change Perspective*, P. P. Brasseur and J. C. J. Nihoul (Eds.), Springer-Verlag, New York, pp. 167–193.
109. Jin, F.-f., J. D. Neelin and **M. Ghil**, 1994: El Niño on the Devil's Staircase: Annual subharmonic steps to chaos, *Science*, **264**, 70–72.
110. **Ghil, M.**, 1994: Cryothermodynamics: The chaotic dynamics of paleoclimate, *Physica D*, **77**, 130–159.
111. Keppenne, C. L., M. D. Dettinger, and **M. Ghil**, 1994: Comment on 'An approach to statistical spatial-temporal modeling of meteorological fields', by M. S. Handcock and J. R. Wallis, *J. Amer. Stat. Assoc.*, **89**, 383–387.
112. Marcus, S. L., **M. Ghil** and J. O. Dickey, 1994: The extratropical 40-day oscillation in the UCLA general circulation model. Part I: Atmospheric angular momentum, *J. Atmos. Sci.*, **51**, 1431–1446.
113. Hao, Z., and **M. Ghil**, 1994: Data assimilation in a simple tropical ocean model with wind-stress errors, *J. Phys. Oceanogr.*, **24**, 2111–2128.
114. **Ghil, M.**, and N. Paldor, 1994: A model equation for nonlinear wavelength selection and amplitude evolution of frontal waves, *J. Nonlin. Sci.*, **4**, 471–496.
115. Paldor, N., C.-H. Liu, **M. Ghil** and R. M. Wakimoto, 1994: A new frontal instability: Theory and ERICA observations, *J. Atmos. Sci.*, **51**, 3227–3237.
116. **Ghil, M.**, and J. McWilliams, 1994: Workshop tackles oceanic thermohaline circulation, *Eos, Trans. AGU*, **75**, pp. 493–498.
117. Dettinger, M. D., **M. Ghil**, C. M. Strong, W. Weibel and P. Yiou, 1995a: Software expedites singular-spectrum analysis of noisy time series, *Eos, Trans. AGU*, **76**, pp. 12, 14, 21.
118. Jiang, S., F.-F. Jin, and **M. Ghil**, 1995: Multiple equilibria, periodic, and aperiodic solutions in a wind-driven, double-gyre, shallow-water model, *J. Phys. Oceanogr.*, **25**, 764–786.
119. Robertson, A. W., C.-C. Ma, C. R. Mechoso, and **M. Ghil**, 1995a: Simulation of the Tropical-Pacific climate with a coupled ocean-atmosphere general circulation model. Part I: The seasonal cycle, *J. Climate*, **8**, 1178–1198.
120. Robertson, A. W., C.-C. Ma, **M. Ghil**, and C. R. Mechoso, 1995b: Simulation of the Tropical-Pacific climate with a coupled ocean-atmosphere general circulation model. Part II: Interannual variability, *J. Climate*, **8**, 1199–1216.
121. Plaut, G., **M. Ghil** and R. Vautard, 1995: Interannual and interdecadal variability in 335 years of Central England temperatures, *Science*, **268**, 710–713.
122. **Ghil, M.**, 1995a: Sequential estimation in meteorology and oceanography, *Geophys. Mag., Ser. 2*, **1**, iv.ii.1–iv.ii.27.
123. Quon, C., and **M. Ghil**, 1995: Multiple equilibria and stable oscillations in thermosolutal convection at small aspect ratio, *J. Fluid. Mech.*, **291**, 33–56.
124. Unal, Y. S., and **M. Ghil**, 1995: Interannual and interdecadal oscillation patterns in sea level,

Climate Dyn., **11**, 255–278.

125. Varadi, F., **M. Ghil**, and W. M. Kaula, 1995: The great inequality in a Hamiltonian planetary theory, *From Newton to Chaos*, A. E. Roy and B. A. Stevens (Eds.), Plenum Press, NY, pp. 103–108.
126. Varadi, F., C. M. de la Barre, W. M. Kaula, and **M. Ghil**, 1995: Singularly weighted symplectic forms and applications to asteroid motion, *Celest. Mech. Dyn. Astron.*, **62**, 23–41.
127. Wolansky, G., and **M. Ghil**, 1995: Stability of quasi-geostrophic flow in a periodic channel, *Phys. Lett. A*, **202**, 111–116.
128. Strong, C. M., F.-f. Jin and **M. Ghil**, 1995: Intraseasonal oscillations in a barotropic model with annual cycle, and their predictability, *J. Atmos. Sci.*, **52**, 2627–2642.
129. Speich, S., H. Dijkstra, and **M. Ghil**, 1995: Successive bifurcations in a shallow-water model, applied to the wind-driven ocean circulation, *Nonlin. Proc. Geophys.*, **2**, 241–268.
130. Dettinger, M. D., **M. Ghil** and C. L. Keppenne, 1995b: Interannual and interdecadal variability in United States surface-air temperatures, 1910–87, *Climatic Change*, **31**, 35–66.
131. Jiang, N., J. D. Neelin and **M. Ghil**, 1995: Quasi-quadrennial and quasi-biennial variability in the equatorial Pacific. *Clim. Dyn.*, **12**, 101–112.
132. Chen, F., and **M. Ghil**, 1995: Interdecadal variability of the thermohaline circulation and high-latitude surface fluxes, *J. Phys. Oceanogr.*, **25**, 2547–2568.
133. **Ghil, M.**, 1995b: Atmospheric modeling, *Natural Climate Variability on Decade-to-Century Time-Scales*, D. G. Martinson *et al.* (Eds.), pp. 164–168.
134. Feliks, Y., and **M. Ghil**, 1996: Mixed barotropic-baroclinic eddies growing on an eastward midlatitude jet. *Geophys. Astrophys. Fluid Dyn.*, **82**, 137–171.
135. **Ghil, M.**, F. Varadi, and W. M. Kaula, 1996: On the secular motion of the Jovian planets, *Dynamics, Ephemerides and Astronomy in the Solar System*, S. Ferraz-Mello, B. Morando and J. E. Arlot (Eds.), IAU Symp. No. 172, pp. 57–60.
136. Marcus, S. L., **M. Ghil** and J. O. Dickey, 1996: The extratropical 40-day oscillation in the UCLA general circulation model. Part II: Spatial structure. *J. Atmos. Sci.*, **53**, 1993–2014.
137. Wolansky, G., and **M. Ghil**, 1996: An extension of Arnol'd's second stability theorem for the Euler equations, *Physica D*, **94**, 161–167.
138. Chen, F., and **M. Ghil**, 1996: Interdecadal variability in a hybrid coupled ocean-atmosphere model, *J. Phys. Oceanogr.*, **26**, 1561–1578.
139. Jin, F.-F., J. D. Neelin, and **M. Ghil**, 1996: El Niño/Southern Oscillation and the annual cycle: Subharmonic frequency-locking and aperiodicity. *Physica D*, **98**, 442–465.
140. **Ghil, M.**, and P. Yiou, 1996: Spectral methods: What they can and cannot do for climatic time series, *Decadal Climate Variability: Dynamics and Predictability*, D. Anderson and J. Willebrand (Eds.), Springer-Verlag, Berlin/Heidelberg, pp. 446–482.
141. **Ghil, M.** and R. Todling, 1996: Tracking atmospheric instabilities with the Kalman filter. Part II: Two-layer results, *Mon. Wea. Rev.*, **124**, 2340–2352.
142. Jiang, S., and **M. Ghil**, 1997: Tracking nonlinear solutions with simulated altimetric data in a shallow-water model. *J. Phys. Oceanogr.*, **27**, 72–95.
143. Feliks, Y., and **M. Ghil**, 1997: Stability of a front separating water masses with different stratifications. *Geophys. Astrophys. Fluid Dyn.*, **84**, 165–204.
144. Ide, K., P. Courtier, **M. Ghil**, and A. Lorenc, 1997: Unified notation for data assimilation: Operational, sequential and variational. *J. Meteor. Soc. Japan*, **75**, 181–189.
145. **Ghil, M.**, 1997a: Advances in sequential estimation for atmospheric and oceanic flows. *J. Meteor. Soc. Japan*, **75**, 289–304.
146. Ide, K., and **M. Ghil**, 1997a: Extended Kalman filtering for vortex systems. Part I: Methodology and point vortices. *Dyn. Atmos. Oceans*, **27**, 301–332.
147. Ide, K., and **M. Ghil**, 1997b: Extended Kalman filtering for vortex systems. Part II: Rankine vortices and observing-system design. *Dyn. Atmos. Oceans*, **27**, 333–350.
148. **Ghil, M.**, and C. Taricco, 1997: Advanced spectral analysis methods. *In Past and Present*

- Variability of the Solar-Terrestrial System: Measurement, Data Analysis and Theoretical Models*, G. Cini Castagnoli and A. Provenzale (Eds.), Società Italiana di Fisica, Bologna, & IOS Press, Amsterdam, pp. 137–159.
149. Paldor, N., and **M. Ghil**, 1997: Linear instability of a zonal jet on an f -plane. *J. Phys. Oceanogr.*, **27**, 2361–2369.
 150. Li, Z.-X., K. Ide, H. Le Treut, and **M. Ghil**, 1997: Atmospheric radiative equilibria in a simple column model. *Clim. Dyn.*, **13**, 429–440.
 151. **Ghil, M.**, 1997b: The SSA-MTM Toolkit: Applications to analysis and prediction of time series. *Proc. SPIE*, **3165**, 216–230.
 152. Weeks, E. R., Y. Tian, J. S. Urbach, K. Ide, H. L. Swinney, and **M. Ghil**, 1997: Transitions between blocked and zonal flows in a rotating annulus with topography. *Science*, **278**, 1598–1601.
 153. **Ghil, M.**, and N. Jiang, 1998: Recent forecast skill for the El Niño/Southern Oscillation. *Geophys. Res. Lett.*, **25**, 171–174.
 154. Dettinger, M. D., and **M. Ghil**, 1998: Seasonal and interannual variations of atmospheric CO₂ and climate, *Tellus*, **50B**, 1–24.
 155. Wolansky, G., and **M. Ghil**, 1998: Nonlinear stability for saddle solutions of ideal flows and symmetry breaking. *Commun. Math. Physics*, **193**, 713–736.
 156. Wolansky, G., **M. Ghil**, and F. Varadi, 1998: The combined effects of cold-nebula drag and mean-motion resonances. *Icarus*, **132**, 137–150.
 157. Moron, V., R. Vautard, and **M. Ghil**, 1998: Trends, interdecadal and interannual oscillations in global sea-surface temperatures, *Clim. Dyn.*, **14**, 545–569.
 158. Robertson, A. W., and **M. Ghil**, 1999: Large-scale weather regimes and local climate over the Western United States, *J. Climate*, **12**, 1796–1813.
 159. Karaca, M., A. Wirth, and **M. Ghil**, 1999: A box model for the paleoceanography of the Black Sea, *Geophys. Res. Lett.*, **26**, 497–500.
 160. Boiseau, M., **M. Ghil**, and A. Juillet-Leclerc, 1999: Climatic trends and interdecadal variability from South-Central Pacific coral records, *Geophys. Res. Lett.*, **26**, 2881–2884.
 161. Smyth, P., K. Ide, and **M. Ghil**, 1999: Multiple regimes in Northern Hemisphere height fields via mixture model clustering, *J. Atmos. Sci.*, **56**, 3704–3723.
 162. Varadi, F., **M. Ghil**, and W. M. Kaula, 1999: Mass-weighted symplectic forms for the N -body problem. *Cel. Mech. Dyn. Astron.*, **72**, 187–199.
 163. Varadi, F., **M. Ghil**, and W. M. Kaula, 1999: Jupiter, Saturn and the edge of chaos, *Icarus*, **139**, 286–294.
 164. Marcus, S. L., **M. Ghil**, and K. Ide, 1999: Models of solar irradiance variability and the instrumental temperature record, *Geophys. Res. Lett.*, **26**, 1449–1452.
 165. **Ghil, M.**, and H. Le Treut, 1999: Climate variability and climate change, in *Scientific Bridges for 2000 and Beyond, a Virtual Colloquium by the Elf-Aquitaine Professors of the Académie des Sciences, Rapports de l'Académie des Sciences*, TEC&DOC, London/Paris/New York, pp. 105–119.
 166. Keppenne, C. L., S. Marcus, M. Kimoto, and **M. Ghil**, 2000: Intraseasonal variability in a two-layer model and observations, *J. Atmos. Sci.*, **57**, 1010–1028.
 167. **Ghil, M.**, and A. W. Robertson, 2000: Solving problems with GCMs: General circulation models and their role in the climate modeling hierarchy. *General Circulation Model Development: Past, Present and Future*, D. Randall (Ed.), Academic Press, San Diego, pp. 285–325.
 168. Robertson, A. W., **M. Ghil**, and M. Latif, 2000: Interdecadal changes in atmospheric low-frequency variability with and without boundary forcing, *J. Atmos. Sci.*, **57**, 1132–1140.
 169. Yiou, P., D. Sornette, and **M. Ghil**, 2000: Data-adaptive wavelets and multi-scale SSA, *Physica D*, **142**, 254–290.
 170. Chassignet, E. P., H. Arango, D. Dietrich, T. Ezer, **M. Ghil**, D. B. Haidvogel, C.-C. Ma, A. Mehra, A. M. Paiva, Z. Sirkes, 2000: DAMEE-NAB: The base experiments, *Dyn. Atmos. Oceans*, **32**, 155–183.

171. Wirth, A., and **M. Ghil**, 2000: Error evolution in the dynamics of an ocean general circulation model, *Dyn. Atmos. Oceans*, **32**, 419–431.
172. Chao, Y., **M. Ghil**, and J. C. McWilliams, 2000: Pacific interdecadal variability in this century's sea surface temperatures, *Geophys. Res. Lett.*, **27**, 2261–2264.
173. **Ghil, M.**, 2000: Is our climate stable? Bifurcations, transitions and oscillations in climate dynamics, in *Science for Survival and Sustainable Development*, V. I. Keilis-Borok and M. Sánchez Sorondo (Eds.), Pontifical Academy of Sciences, Vatican City, pp. 163–184.
174. Lott, F., A. W. Robertson, and **M. Ghil**, 2001: Mountain torques and atmospheric oscillations, *Geophys. Res. Lett.*, **28**, 1207–1210.
175. Tian, Y., E. R. Weeks, K. Ide, J. S. Urbach, C. N. Baroud, **M. Ghil**, and H. L. Swinney, 2001: Experimental and numerical studies of an eastward jet over topography, *J. Fluid Mech.*, **438**, 129–157.
176. Chang, K.-I., **M. Ghil**, K. Ide, and C.-C. A. Lai, 2001: Transition to aperiodic variability in a wind-driven double-gyre circulation model, *J. Phys. Oceanogr.*, **31**, 1260–1286.
177. **Ghil, M.**, 2001: Hilbert problems for the geosciences in the 21st century, *Nonlin. Processes Geophys.*, **8**, 211–222.
178. Huber, M., J. C. McWilliams, and **M. Ghil**, 2001: A climatology of turbulent dispersion in the troposphere, *J. Atmos. Sci.*, **58**, 2377–2394.
179. **Ghil, M.**, T. Ma, and S. Wang, 2001: Structural bifurcation of 2-D incompressible flows, *Indiana U. Math. J.*, **50**, 159–180.
180. Saunders, A., and **M. Ghil**, 2001: A Boolean delay equation model of ENSO variability, *Physica D*, **160**, 54–78.
181. Ide, K., H. Le Treut, Z.-X. Li, and **M. Ghil**, 2001: Atmospheric radiative equilibria. Part II: Bimodal solutions for atmospheric optical properties, *Clim. Dyn.*, **18**, 29–49.
182. **Ghil, M.**, 2002: Natural climate variability, in *Encyclopedia of Global Environmental Change*, T. Munn (Ed.), Vol. 1, J. Wiley & Sons, Chichester/New York, pp. 544–549.
183. Gildor, H., and **M. Ghil**, 2002: Phase relations between climate proxy records: The effect of seasonal precipitation changes. *Geophys. Res. Lett.*, **29** (2), 11.1–11.4 (GL013781).
184. **Ghil, M.**, and A. W. Robertson, 2002: "Waves" vs. "particles" in the atmosphere's phase space: A pathway to long-range forecasting? *Proc. Natl. Acad. Sci. USA*, **99** (Suppl. 1), 2493–2500.
185. Sun, C., Z. Hao, **M. Ghil**, and J. D. Neelin, 2002: Data assimilation for a coupled ocean-atmosphere model. Part I: Sequential state estimation, *Mon. Wea. Rev.*, **130**, 1073–1099.
186. Koo, S., and **M. Ghil**, 2002: Successive bifurcations in a simple model of atmospheric zonal-flow vacillation, *Chaos*, **12**, 300–309.
187. **Ghil, M.**, Y. Feliks, and L. Sushama, 2002: Baroclinic and barotropic aspects of the wind-driven ocean circulation, *Physica D*, **167**, 1–35.
188. **Ghil, M.**, 2003: Climate variability: Nonlinear aspects, in *Encyclopedia of Atmospheric Sciences*, J. R. Holton, J. Pyle, and J. A. Curry (Eds.), Academic Press, pp. 432–438.
189. **Ghil, M.**, M. R. Allen, M. D. Dettinger, K. Ide, D. Kondrashov, M. E. Mann, A. W. Robertson, A. Saunders, Y. Tian, F. Varadi, and P. Yiou, 2002: Advanced spectral methods for climatic time series, *Rev. Geophys.*, **40**(1), pp. 3.1–3.41, [doi: 10.1029/2000RG000092](https://doi.org/10.1029/2000RG000092).
190. Kao, C.-Y. J., D. I. Cooper, J. M. Reisner, W. E. Eichinger, and **M. Ghil**, 2002: Probing near-surface atmospheric turbulence with high-resolution lidar measurements and models. *J. Geophys. Res.*, **107** (D10), **ACL 7.1–7.10**, [10.1029/2001JD000746](https://doi.org/10.1029/2001JD000746).
191. Koo, S., A. W. Robertson, and **M. Ghil**, 2002: Multiple regimes and low-frequency oscillations in the Southern Hemisphere's zonal-mean flow, *J. Geophys. Res.*, **107**(D21), pp. **ACL 14.1–14.13**, [10.1029/2001JD001353](https://doi.org/10.1029/2001JD001353).
192. Simonnet, E., **M. Ghil**, K. Ide, R. Temam, and S. Wang, 2003a: Low-frequency variability in shallow-water models of the wind-driven ocean circulation. Part I: Steady-state solutions. *J. Phys. Oceanogr.*, **33**, 712–728.

193. Simonnet, E., **M. Ghil**, K. Ide, R. Temam, and S. Wang, 2003b: Low-frequency variability in shallow-water models of the wind-driven ocean circulation. Part II: Time-dependent solutions. *J. Phys. Oceanogr.*, **33**, 729–752.
194. Zaliapin, I., V. Keilis-Borok, and **M. Ghil**, 2003a: A Boolean delay equation model of colliding cascades. I: Multiple seismic regimes. *J. Stat. Phys.*, **111**, 815–837.
195. Zaliapin, I., V. Keilis-Borok, and **M. Ghil**, 2003b: A Boolean delay equation model of colliding cascades. II: Prediction of critical transitions. *J. Stat. Phys.*, **111**, 839–861.
196. Kravtsov, S., A. W. Robertson, and **M. Ghil**, 2003: Low-frequency variability in a baroclinic β -channel with land-sea contrast. *J. Atmos. Sci.*, **60**, 2267–2293.
197. Varadi, F., B. Runnegar, and **M. Ghil**, 2003: Successive refinements in long-term integrations of planetary orbits. *Astrophys. J.*, **592**, 620–630.
198. Bellon, G., H. Le Treut, and **M. Ghil**, 2003: Large-scale and evaporation-wind feedbacks in a box model of the tropical climate. *Geophys. Res. Lett.*, **30** (22), pp. CLM 1.1–1.5, 10.1029/2003GL017895.
199. Chen, Z.-M., **M. Ghil**, E. Simonnet, and S. Wang, 2003: Hopf bifurcation in quasi-geostrophic channel flow. *SIAM J. Appl. Math.*, **64**(1), 343–368, doi: 10.1137/S0036139902406164.
200. Kondrashov, D., K. Ide and **M. Ghil**, 2004: Weather regimes and preferred transition paths in a three-level quasi-geostrophic model. *J. Atmos. Sci.*, **61**, 568–587.
201. Feliks, Y., **M. Ghil**, and E. Simonnet, 2004: Low-frequency variability in the midlatitude atmosphere induced by an oceanic thermal front. *J. Atmos. Sci.*, **61**(9), 961–981.
202. Kao, J., D. Flicker, R. Henninger, S. Frey, **M. Ghil**, and K. Ide, 2004: Data assimilation with an extended Kalman filter for impact-produced shock-wave dynamics. *J. Comput. Phys.*, **196** (2) 705–723, doi:10.1016/j.jcp.2003.11.028.
203. Loeuille, N., and **M. Ghil**, 2004: Intrinsic and climatic factors in North-American animal population dynamics. *BMC Ecology*, 2004, **4**(6), doi:10.1186/1472-6785-4-6 (12 pp.)
204. Lott, F., A. W. Robertson, and **M. Ghil**, 2004a: Mountain torques and Northern Hemisphere low-frequency variability. Part I: Hemispheric aspects. *J. Atmos. Sci.*, **61**, 1259–1271.
205. Lott, F., A. W. Robertson, and **M. Ghil**, 2004b: Mountain torques and Northern Hemisphere low-frequency variability. Part II: Regional aspects. *J. Atmos. Sci.*, **61**, 1272–1283.
206. Sayag, R., E. Tziperman, and **M. Ghil**, 2004: Rapid switch-like sea ice growth and land ice–sea ice hysteresis. *Paleoceanogr.*, **19**, doi:10.1029/2003PA000946, PA1021 (13 pp.).
207. Kahn, B. H., A. Eldering, **M. Ghil**, S. Bordoni, and S. A. Clough, 2004: Sensitivity analysis of cirrus cloud properties from high-resolution infrared spectra. Part I: Methodology and synthetic cirrus. *J. Climate*, **17**, 4856–4870; doi: 10.1175/JCLI-3220.1.
208. **Ghil, M.**, J.-G. Liu, C. Wang, and S. Wang, 2004: Boundary-layer separation and adverse pressure gradient for 2-D viscous incompressible flow. *Physica D*, **197**, 149–173, doi: 10.1016/j.physd.2004.06.012.
209. Kravtsov, S., and **M. Ghil**, 2004: Interdecadal variability in a coupled atmosphere–ocean–sea-ice model. *J. Phys. Oceanogr.*, **34**(7), 1756–1775, doi: 10.1175/1520-0485(2004)034 .
210. Kondrashov, D., Y. Feliks, and **M. Ghil**, 2005: Oscillatory modes of extended Nile River records (A.D. 622–1922). *Geophys. Res. Lett.*, **32**, L10702, doi:10.1029/2004GL022156 .
211. **Ghil, M.**, T. Ma, and S. Wang, 2005: Structural bifurcation of 2-D nondivergent flows with Dirichlet boundary conditions: Applications to boundary-layer separation. *SIAM J. Appl. Math.*, **65**, 1576–1596.
212. Zhang, Y., B. Stevens, and **M. Ghil**, 2005: On the diurnal cycle and susceptibility to aerosol concentration in a stratocumulus-topped mixed layer. *Quart. J. Roy. Meteorol. Soc.*, **131**, 1567–1584.
213. Kravtsov, S., A. W. Robertson, and **M. Ghil**, 2005: Bimodal behavior in the zonal mean flow of a baroclinic β -channel model. *J. Atmos. Sci.*, **62**, 1746–1769.
214. Dijkstra, H. A., and **M. Ghil**, 2005: Low-frequency variability of the large-scale ocean circulation: A dynamical systems approach. *Rev. Geophys.*, **43**, RG3002, doi:10.1029/2002RG000122.
215. Simonnet, E., **M. Ghil**, and H. A. Dijkstra, 2005: Homoclinic bifurcations in the quasi-geostrophic

- double-gyre circulation, *J. Mar. Res.*, **63**, 931–956.
216. Kravtsov, S., D. Kondrashov, and **M. Ghil**, 2005: Multilevel regression modeling of nonlinear processes: Derivation and applications to climatic variability, *J. Climate*, **18**, 4404–4424.
 217. Kondrashov, D., S. Kravtsov, A. W. Robertson, and **M. Ghil**, 2005: A hierarchy of data-based ENSO models, *J. Climate*, **18**, 4425–4444.
 218. Chekroun, M., **M. Ghil**, J. Roux, and F. Varadi, 2006: Averaging of time-periodic systems without a small parameter, *Discrete Contin. Dyn. S.*, **14**, 753–782.
 219. Kravtsov, S., A. W. Robertson, and **M. Ghil**, 2006: Multiple regimes and low-frequency oscillations in the Northern Hemisphere's zonal-mean flow, *J. Atmos. Sci.*, **63**, 840–860.
 220. Bellon, G., **M. Ghil**, and H. Le Treut, 2006: Scale separation for moisture-laden regions in the tropical atmosphere, *Geophys. Res. Lett.*, **33**(1), L01802, doi :10.1029/2005GL024578 (5 pp.).
 221. Kao, J., D. Flicker, K. Ide and **M. Ghil**, 2006: Estimating model parameters for an impact-produced shock-wave simulation: Optimal use of partial data with the extended Kalman filter, *J. Comput. Phys.*, **214** (2), 725–737, doi: [10.1016/j.jcp.2005.10.022](https://doi.org/10.1016/j.jcp.2005.10.022).
 222. Kondrashov, D., S. Kravtsov, and **M. Ghil**, 2006: Empirical mode reduction in a model of extratropical low-frequency variability, *J. Atmos. Sci.*, **63**(7), 1859–1877.
 223. Kondrashov, D., and **M. Ghil**, 2006: Spatio-temporal filling of missing points in geophysical data sets, *Nonlin. Processes Geophys.*, **13**, 151–159.
 224. Chin, T. M., M. J. Turmon, J. B. Jewell, and **M. Ghil**, 2007: An ensemble-based smoother with retrospectively updated weights for highly nonlinear systems, *Mon. Wea. Rev.*, **135** (1), 186–202.
 225. Feliks, Y., **M. Ghil**, and E. Simonnet, 2007: Low-frequency variability in the mid-latitude baroclinic atmosphere induced by an oceanic thermal front, *J. Atmos. Sci.*, **64**(1), 97–116, doi: [10.1175/JAS3780.1](https://doi.org/10.1175/JAS3780.1).
 226. Kondrashov, D., and **M. Ghil**, 2007: Reply to T. Schneider's comment on "Spatio-temporal filling of missing points in geophysical data sets," *Nonlin. Proc. Geophys.*, **14**, 3–4.
 227. Gaffney, S. J., A. W. Robertson, P. Smyth, S. J. Camargo, and **M. Ghil**, 2007: Probabilistic clustering of extratropical cyclones using regression mixture models, *Clim. Dyn.*, **29**, 423–440, doi: [10.1007/s00382-007-0235-z](https://doi.org/10.1007/s00382-007-0235-z).
 228. Deloncle, A., R. Berk, F. D'Andrea, and **M. Ghil**, 2007: Weather regime prediction using statistical learning, *J. Atmos. Sci.*, **64**, 1619–1635.
 229. Kravtsov, S., W. K. Dewar, P. Berloff, J. C. McWilliams, and **M. Ghil**, 2007: A highly nonlinear coupled mode of decadal variability in a mid-latitude ocean–atmosphere model. *Dyn. Atmos. Oceans*, **43**, 123–150, doi: [10.1016/j.dynatmoce.2006.08.001](https://doi.org/10.1016/j.dynatmoce.2006.08.001).
 230. Camargo, S. J., A. W. Robertson, S. J. Gaffney, P. Smyth, and **M. Ghil**, 2007a: Cluster analysis of typhoon tracks. Part I: General properties, *J. Climate*, **20**, 3635–3653.
 231. Camargo, S. J., A. W. Robertson, S. J. Gaffney, P. Smyth, and **M. Ghil**, 2007b: Cluster analysis of typhoon tracks. Part II: Large-scale circulation and ENSO, *J. Climate*, **20**, 3654–3676.
 232. Ihler, A. T., S. Kirshner, **M. Ghil**, A. W. Robertson, and P. Smyth, 2007: Graphical models for statistical inference and data assimilation, *Physica D*, **230**, 72–87, 2007.
 233. Spyratos, V., P. Bourgeron, and **M. Ghil**, 2007: Development at the wildland–urban interface and the mitigation of forest-fire risks, *Proc. Natl. Acad. Sci. USA*, **104**, 14272–14276; published online on August 23, 2007, doi: [10.1073/pnas.0704488104](https://doi.org/10.1073/pnas.0704488104).
 234. Kondrashov, D., J. Shen, R. Berk, F. D'Andrea, and **M. Ghil**, 2007: Predicting weather regime transitions in Northern Hemisphere datasets, *Clim. Dyn.*, **29**, 535–551, doi: [10.1007/s00382-007-0293-2](https://doi.org/10.1007/s00382-007-0293-2).
 235. Kondrashov, D., Y. Shprits, **M. Ghil**, and R. Thorne, 2007: Estimation of relativistic electron lifetimes in the outer radiation belt: A Kalman filtering approach, *J. Geophys. Res.-Space Phys.*, **112**, A10227, doi: [10.1029/2007JA012583](https://doi.org/10.1029/2007JA012583).
 236. Shprits, Y., D. Kondrashov, Y. Chen, R. M. Thorne, **M. Ghil**, R. Friedel, and G. Reeves, 2007: Reanalysis of relativistic radiation belt electron fluxes using CRRES satellite data, a radial diffusion model, and a Kalman filter, *J. Geophys. Res.-Space Phys.*, **112**, A12216, doi:

[10.1029/2007JA012579](https://doi.org/10.1029/2007JA012579)

237. **Ghil, M.**, 2007: Georges Devereux, de la physique quantique à l'ethnopsychiatrie complémentariste, *Coq Héron*, **190**, 55–64; transl. into Hungarian, with additional notes and a bibliography, *Thalassa*, **19** (2008), 1: 23–36.
238. Kravtsov, S., P. Berloff, W. K. Dewar, **M. Ghil**, and J. C. McWilliams, 2007: Dynamical origin of low-frequency variability in a highly nonlinear mid-latitude coupled model. *J. Climate*, **19**, 6391–6408.
239. Sushama, L., **M. Ghil**, and K. Ide, 2007: Spatio-temporal variability in a mid-latitude ocean basin subject to periodic wind forcing. *Atmosphere-Ocean*, **45**, 227–250, doi: [10.3137/ao.450404](https://doi.org/10.3137/ao.450404).
240. Hallegatte, S., **M. Ghil**, P. Dumas, and J.-C. Hourcade, 2008: Business cycles, bifurcations and chaos in a neo-classical model with investment dynamics, *J. Economic Behavior & Organization*, **67**, 57–77, doi: [10.1016/j.jebo.2007.05.001](https://doi.org/10.1016/j.jebo.2007.05.001).
241. Kravtsov, S., W. K. Dewar, **M. Ghil**, P. Berloff and J. C. McWilliams, 2008: North Atlantic climate variability in coupled models and data, *Nonlin. Processes Geophys.*, **15**, 13–24, <http://www.nonlin-processes-geophys.net/15/13/2008/npg-15-13-2008.html>.
242. Kravtsov, S., W. K. Dewar, **M. Ghil**, J. C. McWilliams, and P. Berloff, 2008: A mechanistic model of mid-latitude decadal climate variability. *Physica D*, **237**, 584–599, doi: [10.1016/j.physd.2007.09.025](https://doi.org/10.1016/j.physd.2007.09.025).
243. Carrassi, A., **M. Ghil**, A. Trevisan and F. Uboldi, 2008: Data assimilation as a nonlinear dynamical systems problem: Stability and convergence of the prediction-assimilation system, *Chaos*, **18**(2), 023112, doi: [10.1063/1.2909862](https://doi.org/10.1063/1.2909862).
244. **Ghil, M.**, I. Zaliapin, and S. Thompson, 2008: A delay differential model of ENSO variability: parametric instability and the distribution of extremes, *Nonlin. Processes Geophys.*, **15**, 417–433.
245. Camargo, S. J., A. W. Robertson, A. G. Barnston, and **M. Ghil**, 2008: Clustering of eastern North Pacific hurricane tracks: ENSO and MJO effects, *Geochem., Geophys. Geosyst.*, **9**, Q06V05, doi:[10.1029/2007GC001861](https://doi.org/10.1029/2007GC001861).
246. **Ghil, M.**, M. D. Chekroun, and E. Simonnet, 2008: Climate dynamics and fluid mechanics: Natural variability and related uncertainties; invited survey paper for Special Issue on “The Euler Equations: 250 Years On,” *Physica D*, **237**, 2111–2126, doi:[10.1016/j.physd.2008.03.036](https://doi.org/10.1016/j.physd.2008.03.036).
247. Hillerbrand, R., and **M. Ghil**, 2008: Anthropogenic climate change: Scientific uncertainties and moral dilemmas, invited paper for Special Issue on “The Euler Equations: 250 Years On,” *Physica D*, **237**, 2132–2138, doi:[10.1016/j.physd.2008.02.015](https://doi.org/10.1016/j.physd.2008.02.015).
248. Hallegatte, S., and **M. Ghil**, 2008: Natural disasters impacting a macroeconomic model with endogenous dynamics, *Ecological Economics*, **68**, 582–592, doi:[10.1016/j.ecolecon.2008.05.022](https://doi.org/10.1016/j.ecolecon.2008.05.022).
249. **Ghil, M.**, I. Zaliapin, and B. Coluzzi, 2008: Boolean delay equations: A simple way of looking at complex systems, *Physica D*, **237**, 2967–2986, doi: [10.1016/j.physd.2008.07.006](https://doi.org/10.1016/j.physd.2008.07.006).
250. Kondrashov, D., C.-j. Sun, and **M. Ghil**, 2008: Data assimilation for a coupled ocean-atmosphere model. Part II: Parameter estimation, *Mon. Wea. Rev.*, **136**, 5062–5076, doi: [10.1175/2008MWR2544.1](https://doi.org/10.1175/2008MWR2544.1).
251. Taricco, C., **M. Ghil**, S. Alessio, and G. Vivaldo, 2009: Two millennia of climate variability in the Central Mediterranean, *Clim. Past*, **5**, 171–181, www.clim-past.net/5/171/2009/.
252. Bordi, I., K. Fraedrich, **M. Ghil**, and A. Sutera, 2009: Zonal-flow regime changes in a GCM and in a simple quasi-geostrophic model: The role of stratospheric dynamics, *J. Atmos. Sci.*, **66**, 1366–1383.
253. Simonnet, E., H. A. Dijkstra, and **M. Ghil**, 2009: Bifurcation analysis of ocean, atmosphere and climate models, in *Computational Methods for the Ocean and the Atmosphere*, R. Temam and J. J. Tribbia (eds.), North-Holland, pp. 187–229.
254. Zhang, Y., B. Stevens, B. Medeiros, and **M. Ghil**, 2009: Low-cloud fraction, lower-tropospheric stability and large-scale divergence, *J. Climate*, **22**, 4827–4844, doi: [10.1175/2009JCLI2891.1](https://doi.org/10.1175/2009JCLI2891.1).

255. Kravtsov, S., D. Kondrashov, and **M. Ghil**, 2009: Empirical model reduction and the modeling hierarchy in climate dynamics, in *Stochastic Physics and Climate Modelling*, T. N. Palmer and P. Williams (Eds.), Cambridge Univ. Press, pp. 35–72.
256. Deremble, B., F. D'Andrea, and **M. Ghil**, 2009: Fixed points, stable manifolds, weather regimes and their predictability, *Chaos*, **19** (4), 043109, [doi: 10.1063/1.3230497](https://doi.org/10.1063/1.3230497).
257. Strounine, K., S. Kravtsov, D. Kondrashov, and **M. Ghil**, 2010: Reduced models of atmospheric low-frequency variability: Parameter estimation and comparative performance, *Physica D*, **239**, 145–166, [doi:10.1016/j.physd.2009.10.013](https://doi.org/10.1016/j.physd.2009.10.013).
258. Zaliapin, I., and **M. Ghil**, 2010a: Another look at climate sensitivity, *Nonlin. Processes Geophys.*, **17**, 113–122.
259. Zaliapin, I., and **M. Ghil**, 2010b: A delay differential model of ENSO variability – Part 2: Phase locking, multiple solutions and dynamics of extrema, *Nonlin. Processes Geophys.*, **17**, 123–135.
260. Feliks, Y., **M. Ghil**, and A. W. Robertson, 2010: Oscillatory climate modes in the Eastern Mediterranean and their synchronization with the North Atlantic Oscillation, *J. Clim.*, **23**, 4060–4079, [doi:10.1175/2010JCLI3181.1](https://doi.org/10.1175/2010JCLI3181.1).
261. Zaliapin, I., E. Foufoula-Georgiou, and **M. Ghil**, 2010: Transport on river networks: A dynamical approach, *J. Geophys. Res.–Earth Surface*, **115**, F00A15, [doi:10.1029/2009JF001281](https://doi.org/10.1029/2009JF001281).
262. **Ghil, M.**, P. L. Read and L. A. Smith, 2010: Geophysical flows as dynamical systems: The influence of Hide's experiments, *Astron. Geophys.*, **51**(4), 4.28–4.35.
263. Kondrashov, D., Y. Shprits and **M. Ghil**, 2010: Gap filling of solar wind data by singular spectrum analysis, *Geophys. Res. Lett.*, **37**, L15101, [doi:10.1029/2010GL044138](https://doi.org/10.1029/2010GL044138).
264. Kondrashov, D., S. Kravtsov and **M. Ghil**, 2010: Signatures of nonlinear dynamics in an idealized atmospheric model, *J. Atmos. Sci.*, **68**, 3–12, [doi: 10.1175/2010JAS3524.1](https://doi.org/10.1175/2010JAS3524.1).
265. Feliks, Y., **M. Ghil**, and A. W. Robertson, 2011: The atmospheric circulation over the North Atlantic as induced by the SST field, *J. Clim.*, **24**(2), 522–542, [doi: 10.1175/2010JCLI3859.1](https://doi.org/10.1175/2010JCLI3859.1).
266. Zaliapin, I., and **M. Ghil**, 2011: Reply to G. H. Roe's and M. B. Baker's comment on "Another look at climate sensitivity," *Nonlin. Processes Geophys.*, **18**, 129–131, [doi:10.5194/npg-18-129-2011](https://doi.org/10.5194/npg-18-129-2011).
267. **Ghil, M.**, P. Yiou, S. Hallegatte, B. D. Malamud, P. Naveau, A. Soloviev, P. Friederichs, V. Keilis-Borok, D. Kondrashov, V. Kossobokov, O. Mestre, C. Nicolis, H. Rust, P. Shebalin, M. Vrac, A. Witt, and I. Zaliapin, 2011: Extreme events: Dynamics, statistics and prediction, *Nonlin. Processes Geophys.*, **18**, 295–350, [doi:10.5194/npg-18-295-2011](https://doi.org/10.5194/npg-18-295-2011).
268. Chekroun, M. D., D. Kondrashov, and **M. Ghil**, 2011: Predicting stochastic systems by noise sampling, and application to the El Niño-Southern Oscillation, *Proc. Natl. Acad. Sci. USA*, **108** (29) 11766–11771, [doi:10.1073/pnas.1015753108](https://doi.org/10.1073/pnas.1015753108).
269. Chekroun, M. D., E. Simonnet, and **M. Ghil**, 2011: Stochastic climate dynamics: Random attractors and time-dependent invariant measures, *Physica D*, **240**(21), 1685–1700, [doi:10.1016/j.physd.2011.06.005](https://doi.org/10.1016/j.physd.2011.06.005).
270. Groth, A., and **M. Ghil**, 2011: Multivariate singular spectrum analysis and the road to phase synchronization, *Phys. Rev. E*, **84**, 036206 (10 pp.), [doi:10.1103/PhysRevE.84.036206](https://doi.org/10.1103/PhysRevE.84.036206).
271. Kondrashov, D., Y. Shprits, and **M. Ghil**, 2011: Log-normal Kalman filter for assimilating phase-space density data in the radiation belts, *Space Weather*, **9**, S11006, [doi:10.1029/2011SW000726](https://doi.org/10.1029/2011SW000726).
272. Coluzzi, B., **M. Ghil**, S. Hallegatte, and G. Weisbuch, 2011: Boolean delay equations on networks in economics and the geosciences, *Intl. J. Bif. Chaos*, **21** (12), 3511–3548, [doi: 10.1142/S0218127411030702](https://doi.org/10.1142/S0218127411030702).
273. Kravtsov, S., D. Kondrashov, I. Kamenkovich, and **M. Ghil**, 2011: An empirical stochastic model of sea-surface temperatures and surface winds over the Southern Ocean, *Ocean Sci.*, **7**, 755–770, [doi:10.5194/os-7-755-2011](https://doi.org/10.5194/os-7-755-2011).
274. Moron, V., A. W. Robertson, and **M. Ghil**, 2012: Impact of the modulated annual cycle and intraseasonal oscillation on daily-to-interannual rainfall variability across monsoonal India, *Clim. Dyn.*, **38**, 2409–2435, [doi:10.1007/s00382-011-1253-4](https://doi.org/10.1007/s00382-011-1253-4).

275. Brachet, S., F. Codron, Y. Feliks, **M. Ghil**, H. Le Treut, and E. Simonnet, 2012: Atmospheric circulations induced by a mid-latitude SST front: A GCM study, *J. Clim.*, **25**, 1847–1853, [doi: 10.1175/JCLI-D-11-00329.1](https://doi.org/10.1175/JCLI-D-11-00329.1).
276. Alessio, S., G. Vivaldo, C. Taricco and **M. Ghil**, 2012: Natural variability and anthropogenic effects in a Central Mediterranean core, *Clim. Past*, **8**, 831–839, [doi:10.5194/cp-8-831-2012](https://doi.org/10.5194/cp-8-831-2012).
277. Deremble, B., G. Lapeyre, and **M. Ghil**, 2012: Atmospheric dynamics triggered by an oceanic SST front in a moist quasi-geostrophic model, *J. Atmos. Sci.*, **69**, 1617–1632, [doi: 10.1175/JAS-D-11-0288.1](https://doi.org/10.1175/JAS-D-11-0288.1).
278. Deremble, B., E. Simonnet, and **M. Ghil**, 2012: Multiple equilibria and oscillatory modes in a mid-latitude ocean-forced atmospheric model, *Nonlin. Processes Geophys.*, **19**, 479–499, [doi:10.5194/npg-19-479-2012](https://doi.org/10.5194/npg-19-479-2012).
279. **Ghil, M.**, and I. Zaliapin, 2013: El-Niño/Southern Oscillation: Impacts, modeling, and forecasts, in *Encyclopedia of Natural Hazards*, P. Bobrowski (Ed.), Springer-Verlag, ISBN 978-90-481-8699-0, pp. 250–262.
280. De Viron, O., J. O. Dickey, and **M. Ghil**, 2013: Global modes of climate variability, *Geophys. Res. Lett.*, **40**, 1832–1837, [doi: 10.1002/grl.50386](https://doi.org/10.1002/grl.50386).
281. Hannart, A., **M. Ghil**, J.-L. Dufresne and P. Naveau, 2013: Disconcerting learning on climate sensitivity and the uncertain future of uncertainty, *Climatic Change*, **119**, 585–601, [doi: 10/1007/s10584-013-0770-z](https://doi.org/10/1007/s10584-013-0770-z).
282. Rousseau, D.-D., **M. Ghil**, G. Kukla, A. Sima, P. Antoine, M. Fuchs, C. Hatté, F. Lagroix, M. Debret, and O. Moine, 2013: Major dust events in Europe during marine isotope stage 5 (130–74 ka): A climatic interpretation of the "markers," *Clim. Past*, **9**, 2213–2230, [doi:10.5194/cp-9-2213-2013](https://doi.org/10.5194/cp-9-2213-2013).
283. Kondrashov, D., M. Chekroun, A. W. Robertson, and **M. Ghil**, 2013: Low-order stochastic model and "past-noise forecasting" of the Madden-Julian oscillation, *Geophys. Res. Lett.*, **40**, 5305–5310, [doi:10.1002/grl.50991](https://doi.org/10.1002/grl.50991).
284. Feliks, Y., A. Groth, A. W. Robertson, and **M. Ghil**, 2013: Oscillatory climate modes in the Indian monsoon, North Atlantic and Tropical Pacific, *J. Clim.*, **26**, 9528–9544.
285. Chekroun, M. D., J. D. Neelin, D. Kondrashov, J. C. McWilliams, and **M. Ghil**, 2014: Rough parameter dependence in climate models, and the role of Ruelle-Pollicott resonances, *Proc. Natl. Acad. Sci. USA*, **111** (5) 1684–1690, [doi: 10.1073/pnas.1321816111](https://doi.org/10.1073/pnas.1321816111).
286. Chang, C.P., M. Ghil, M. Latif, H.-C. Kuo, C.-H. Sui, and J. M. Wallace, 2014: Understanding multidecadal climate changes, *Bull. Amer. Meteorol. Soc.*, **95**, 293–296, [doi: 10.1175/BAMS-D-13-00015.1](https://doi.org/10.1175/BAMS-D-13-00015.1).
287. Roques, L., M. D. Chekroun, M. Cristofol, S. Soubeyrand and **M. Ghil**, 2014: Parameter estimation for energy balance models with memory, *Proc R. Soc. A*, **470**, 20140349, <http://dx.doi.org/10.1098/rspa.2014.0349>.
288. **Ghil, M.**, 2014: Climate variability: Nonlinear and random aspects, in *Encyclopedia of Atmospheric Sciences*, 2nd edn., G.R. North, J. Pyle and F. Zhang (Eds.), Elsevier, vol. 2, pp. 38–46.
289. Taricco, C., S. Mancuso, F. C. Ljungqvist, S. Alessio, and **M. Ghil**, 2014: Multispectral analysis of Northern Hemisphere temperature records over the last five millennia, *Clim. Dyn.*, [doi:10.1007/s00382-014-2331-1](https://doi.org/10.1007/s00382-014-2331-1) (22 pp.).
290. Mukhin, D., E. Loskutov, A. Mukhina, A. Feigin, I. Zaliapin, and **M. Ghil**, 2015a: Predicting critical transitions in ENSO models, Part I: Methodology and simple models with memory, *J. Climate*, **28**, 1940–1961.
291. Mukhin, D., D. Kondrashov, E. Loskutov, A. Gavrilov, A. Feigin, and **M. Ghil**, 2015b: Predicting critical transitions in ENSO models, Part II: Spatially dependent models, *J. Climate*, **28**, 1962–1976.
292. L'Hévéder, B., F. Codron, and **M. Ghil**, 2015: Impact of anomalous northward oceanic heat transport on global climate in a slab-ocean setting, *J. Climate*, **28**, 2650–2664.
293. Moron, V., A. W. Robertson, J.-H. Qian and **M. Ghil**, 2015: Weather types across the Maritime Continent: From the diurnal cycle to interannual variations, *Frontiers Env. Sciences*, **2**-65, [doi: 10.3389/fenvs.2014.00065](https://doi.org/10.3389/fenvs.2014.00065) (19 pp.)
294. Kondrashov, D., M. D. Chekroun and **M. Ghil**, 2015: Data-driven non-Markovian closure models,

- Physica D*, 297, 33–55, [doi:10.1016/j.physd.2014.12.005](https://doi.org/10.1016/j.physd.2014.12.005) .
295. Rombouts, J., and **M. Ghil**, 2015: Oscillations in a simple climate-vegetation model, *Nonlin. Processes Geophys.*, **22**, 275–288, <http://www.nonlin-processes-geophys.net/22/275/2015/> , [doi:10.5194/npg-22-275-2015](https://doi.org/10.5194/npg-22-275-2015) .
 296. **Ghil, M.**, 2015: A mathematical theory of climate sensitivity or, How to deal with both anthropogenic forcing and natural variability?, Ch. 2 in *Climate Change: Multidecadal and Beyond*, C. P. Chang, M. Ghil, M. Latif and J. M. Wallace (Eds.), World Scientific Publ. Co./Imperial College Press, pp. 31–51.
 297. Groth, A., **M. Ghil**, S. Hallegatte and P. Dumas, 2015: The role of oscillatory modes in US business cycles, *OECD Journal: Journal of Business Cycle Measurement and Analysis*, vol. 2015/1, pp. 63–81, doi: <http://dx.doi.org/10.1787/jbcma-2015-5jrs0lv715wl>.
 298. **Ghil, M.**, M. D. Chekroun, and G. Stepan, 2015: A collection on ‘Climate dynamics: multiple scales and memory effects’, Introduction, *R. Soc. Proc. A*, **471**, 20150097, <http://dx.doi.org/10.1098/rspa.2015.0097>.
 299. Chavez, E., G. Conway, **M. Ghil** and M. Sadler, 2015: Ensuring food security by risk management in an uncertain climate, *Nature Climate Change*, **5**, 997–1002, [doi:10.1038/nclimate2747](https://doi.org/10.1038/nclimate2747) .
 300. Vannitsem, S., J. Demayer, L. De Cruz, and **M. Ghil**, 2015: Low-frequency variability and heat transport in a low-order nonlinear coupled ocean-atmosphere model, *Physica D*, **309**, 71–85, [doi:10.1016/j.physd.2015.07.006](https://doi.org/10.1016/j.physd.2015.07.006) .
 301. **Ghil, M.**, and I. Zaliapin, 2015: Understanding ENSO variability and its extrema: A delay differential equation approach, Ch. 6 in *Extreme Events: Observations, Modeling and Economics*, M. Chavez, M. Ghil and J. Urrutia-Fucugauchi (Eds.), Geophysical Monograph 214, American Geophysical Union & Wiley, pp. 63–78.
 302. Groth, A., P. Dumas, **M. Ghil** and S. Hallegatte, 2015: Impacts of natural disasters on a dynamic economy, Ch. 19 in *Extreme Events: Observations, Modeling and Economics*, M. Chavez, M. Ghil and J. Urrutia-Fucugauchi (Eds.), Geophysical Monograph 214, American Geophysical Union & Wiley, pp. 343–359.
 303. Groth, A., and **M. Ghil**, 2015: Monte Carlo singular spectrum analysis (SSA) revisited: Detecting oscillator clusters in multivariate data sets, *J. Clim.*, **28**, 7873–7893.
 304. Colon, C., D. Claessen, and **M. Ghil**, 2015: Bifurcation analysis of an agent-based model for predator–prey interactions, *Ecol. Modelling*, **317**, 93–106.
 305. Chekroun, M. D., **M. Ghil**, H. Liu, and S. Wang, 2016: Low-dimensional Galerkin approximations of nonlinear delay differential equations, *Discrete Cont. Dyn. S.*, **36**, 4133–4177.
 306. Hannart, A., J. Pearl, F. E. L. Otto, P. Naveau, and **M. Ghil**, 2016: Counterfactual causality theory for the attribution of weather and climate-related events, *Bull. Amer. Meteorol. Soc.*, **97**, 99–110, doi: <http://dx.doi.org/10.1175/BAMS-D-14-00034.1>.
 307. Walwer, D., E. Calais and **M. Ghil**, 2016: Data-adaptive detection of transient deformation in geodetic networks, *J. Geophys. Res. Solid Earth*, **121**, [doi:10.1002/2015JB012424](https://doi.org/10.1002/2015JB012424).
 308. Kondrashov, D., M. D. Chekroun, and **M. Ghil**, 2015: Comment on “Nonparametric forecasting of low-dimensional dynamical systems,” *Phys. Rev. E*, **93**, 036201, [doi:10.1103/PhysRevE.93.036201](https://doi.org/10.1103/PhysRevE.93.036201).
 309. Merkin, V. G., D. Kondrashov, **M. Ghil**, and B. J. Anderson, 2016: Data assimilation of low-altitude magnetic perturbations into a global magnetosphere model, *Space Weather*, **14**, 165–184, [doi:10.1002/2015SW001330](https://doi.org/10.1002/2015SW001330).
 310. Hannart, A., A. Carrassi, M. Bocquet, **M. Ghil**, P. Naveau, M. Pulido, J. Ruiz, and P. Tandeo, 2016: DADA: Data assimilation for the detection and attribution of weather- and climate-related events, *Clim. Change*, **136**(2), 155–174.
 311. Edeline, E., A. Groth, B. Cazelles, D. Claessen, I. J. Winfield, J. Ohlberger, Ø. Langangen, L. A. Vøllestad, N. C. Stenseth, and **M. Ghil**, 2016: Synergistic top-down forcing from climate and pathogens on ecosystem dynamics, *Oecologia*, [doi:10.1007/s00442-016-3575-8](https://doi.org/10.1007/s00442-016-3575-8) .
 312. Pierini, S., **M. Ghil** and M. D. Chekroun, 2016: Exploring the pullback attractors of a low-order quasigeostrophic ocean model: The deterministic case, *J. Climate*, **29**, 4185–4202, [doi:10.1175/JCLI-D-15-0848.1](https://doi.org/10.1175/JCLI-D-15-0848.1) .

313. Sella, L., G. Vivaldo, A. Groth, and **M. Ghil**, 2016: Economic cycles and their synchronization: a comparison of cyclic modes in three European countries, *J. Business Cycle Research*, in press.
314. **Ghil, M.**, 2016: The wind-driven ocean circulation: Applying dynamical systems theory to a climate problem, *Discr. Cont. Dyn. Syst. – A*, in press.
315. Ogutu, K. B. Z., F. D'Andrea, **M. Ghil**, C. Nyandwi, M. M. Manene, and J. N. Muthama, 2015: Coupled Climate-Economy-Biosphere (CoCEB) model. Part I: Abatement share and investment in low-carbon technologies, *Earth System Dyn. Discuss.*, **6**, 819–863, [doi:10.5194/esdd-6-819-2015](https://doi.org/10.5194/esdd-6-819-2015).
316. Ogutu, K. B. Z., F. D'Andrea, **M. Ghil**, C. Nyandwi, M. M. Manene, and J. N. Muthama, 2016: Coupled Climate-Economy-Biosphere (CoCEB) model. Part II: Deforestation control and investment in carbon capture and storage technologies, *Earth System Dyn. Discuss.*, *sub judice*.
317. Dumas, P., **M. Ghil**, A. Groth, and S. Hallegatte, 2016: Dynamic coupling of the climate and macroeconomic systems, *Math. Social Sci.*, accepted.
318. Feliks, Y., A. W. Robertson and **M. Ghil**, 2016: Interannual variability in North Atlantic weather: Data analysis and a quasi-geostrophic model, *J. Atmos. Sci.*, *sub judice*.
319. Greco, G., D. Kondrashov, S. Kobayashi, **M. Ghil**, M. Branchesi, C. Guidorzi, G. Stratta, M. Ciszak, F. Marino, and A. Ortolan, 2016: Signatures of inner-engine dynamics in gamma-ray bursts as revealed by singular spectrum analysis, *Ap. J.*, submitted.
320. Carrassi, A., M. Bocquet, A. Hannart, and M. Ghil, 2016: Estimating model evidence using data assimilation, *Q. J. Roy. Meteor. Soc.*, submitted, [arXiv:1605.01526](https://arxiv.org/abs/1605.01526).
321. Hannart, A., M. Ghil, P. Naveau, F. E. L. Otto, S. I. Seneviratne, M. F. Wehner, and F. Zwiers, 2016: Attribution of extreme climate and weather events: Class-level and singular causation, *Nature Climate Change*, submitted.
322. Groth, A., Y. Feliks, D. Kondrashov, and M. Ghil, 2016: Interannual variability in the North Atlantic ocean's temperature field and its association with the wind-stress forcing, *J. Climate*, submitted.

D. Miscellaneous

1. **Ghil, M.**, 1973: *On Balance and Initialization*, Report IMM-400, Courant Institute of Mathematical Sciences, New York University, New York, 42 pp.; available in the *Leopold Classic Library*, <http://www.amazon.com/balance-initialization-ARPA-Order-No/dp/B013T2A7HQ>
2. **Ghil, M.**, 1975: *Steady-State Solutions of a Diffusive Energy-Balance Climate Model and Their Stability*, Report IMM-410, Courant Institute of Mathematical Sciences, New York University, New York, 74 pp.; available in the *Classic Reprint Series* of Förlag Forgotten Books, <http://www.bokus.com/bok/9781332200214/steady-state-solutions-of-a-diffusive-energy-balance-climate-model-and-their-stability-classic-reprint/>
3. **Ghil, M.**, 1987: 'An Introduction to Three-Dimensional Climate Modeling,' by W. M. Washington and C. L. Parkinson, *Bull. Amer. Meteorol. Soc.*, **68**, 676–677.
4. **Ghil, M.**, 1987: 'Issues in Atmospheric and Oceanic Modeling (Smagorinsky Festschrift), Part A: Climate Dynamics,' edited by S. Manabe, *Climatic Change*, **11**, 396–400.
5. **Ghil, M.**, 1988: 'Namias Symposium,' edited by J. O. Roads, *Bull. Amer. Meteorol. Soc.*, **69**, 418–419.
6. **Ghil, M.**, 1988: 'Anomalous Atmospheric Flows and Blocking,' edited by R. Benzi, B. Saltzman and A. C. Wiin-Nielsen, *Geophys. Astrophys. Fluid Dyn.*, **42**, 327–330.
7. Tribbia, J. J., and **M. Ghil**, 1990: Forced zonal flow over topography and the 30–60 day oscillation in atmospheric angular momentum, NCAR Tech. Rep. 0501/89-5, National Center for Atmospheric Research, Boulder, Colo.
8. **Ghil, M.**, C. L. Keppenne, G. C. Fox, J. W. Flower, A. Kowala, J. O. Dickey, J. J. Rosati, P. N. Papaccio, J. F. Shepanski, and G. Spadaro, 1991a: Parallel processing for global change studies, *Quest, Technology at TRW Space & Defense Sector*, **13**, No. 2, 55–64.
9. **Ghil, M.**, S. L. Marcus, J. O. Dickey, and C. L. Keppenne, 1991b: *AAM the Movie*. NTSC videocassette AVC-91-063, Caltech/NASA Jet Propulsion Laboratory, Pasadena, CA 91109 [available also from MG upon request].
10. Kimoto, M., **M. Ghil** and K.-C. Mo, 1991: Spatial structure of the extratropical 40-day oscillation, *Eighth Conf. Atmos. & Oceanic Waves and Stability* (Denver, Colo.), American Meteorological Society,

- Boston, Mass., pp. 115–116.
11. Keppenne, C. L. and **M. Ghil**, 1992–1995: Forecasts of the Southern Oscillation Index Using Singular Spectrum Analysis and the Maximum Entropy Method. *Experimental Long-Lead Forecast Bulletin*, Vol. 1, Nos. 1–4, Vol. 2, Nos. 1–4, Vol. 3, Nos. 1–4, and Vol. 4, Nos. 1 & 2, National Meteorological Center, NOAA, U.S. Department of Commerce.
 12. Strong, C. M., and **M. Ghil**, 1993: *Intraseasonal Oscillations in the Northern Hemisphere Extratropics: A Four-Way Intercomparison* (observations, simple and intermediate models, and general circulation model). NTSC videocassette [available from MG upon request].
 13. Jiang, S., F.-F. Jin, and **M. Ghil**, 1993: The nonlinear behavior of western boundary currents in a wind-driven, double-gyre, shallow-water model, *Ninth Conf. Atmos. & Oceanic Waves and Stability* (San Antonio, TX), American Meteorological Society, Boston, Mass., pp. 64–67.
 14. Speich, S., and **M. Ghil**, 1994: Interannual variability of the mid-latitude oceans: A new source of climate variability? *Sistema Terra*, 3(3), 33–35.
 15. **Ghil, M.**, 1995: Nonlinear ENSO models, supporting diagnostics, and predictability. In *Proc. International Workshop on Numerical Prediction of Oceanic Variations*, Tokyo, Japan, 7–11 March, Science and Technology Agency/Japan Meteorological Agency, pp. 175–181.
 16. Hao, Z., and M. Ghil, 1995: Sequential parameter estimation for a coupled ocean-atmosphere model. *Proc. WMO Second Int. Symp. on Assimilation of Observations in Meteorology and Oceanography*, Tokyo, Japan, WMO/TD-No. 651, 181–186.
 17. **Ghil, M.**, 1995: “Commencement Remarks 1994,” Lycée Français de Los Angeles, 1994–95 Yearbook, pp. 52–53, 1995.
 18. Jiang, N., **M. Ghil**, and D. Neelin, 1995: Forecasts of equatorial Pacific SST anomalies by using an autoregressive process and singular spectrum analysis. *Experimental Long-Lead Forecast Bulletin*, Vol. 4, No. 1, pp. 24–27, and Vol. 4, No. 2, pp. 35–36, National Meteorological Center, NOAA, U.S. Department of Commerce.
 19. Jiang, N., C. Keppenne, **M. Ghil**, and D. Neelin, 1995: Forecasts for tropical Pacific SST anomalies and the SOI based on singular spectrum analysis combined with the maximum entropy method. *Experimental Long-Lead Forecast Bulletin*, Vol. 4, No. 3, pp. 38–40. National Meteorological Center, NOAA, U.S. Department of Commerce.
 20. **Ghil, M.**, and C. L. Keppenne, 1995: ‘Inverse Methods in Physical Oceanography,’ by A. F. Bennett, *PAGEOPH*, 145, 390–393.
 21. Jiang, N., C. Keppenne, **M. Ghil**, and D. Neelin, 1995: Forecasts of equatorial Pacific SST anomalies based on singular spectrum analysis combined with the maximum entropy method. *Experimental Long-Lead Forecast Bulletin*, Vol. 4, No. 4, 42–43. National Meteorological Center, NOAA, U.S. Department of Commerce.
 22. Jiang, N., **M. Ghil**, and D. Neelin, 1996: Forecasts of equatorial Pacific SST anomalies based on singular spectrum analysis combined with the maximum entropy method. *Experimental Long-Lead Forecast Bulletin*, Vol. 5, No. 1, 36–37. National Meteorological Center, NOAA, U.S. Department of Commerce.
 23. Jiang, N., **M. Ghil** and D. Neelin, 1996–1997: Forecasts of Niño-3 SST anomalies and SOI based on singular spectrum analysis combined with the maximum entropy method. *Experimental Long-Lead Forecast Bulletin*, Vol. 5, Nos. 2–4, and Vol. 6, Nos. 1 & 2, National Centers for Environmental Prediction, NOAA, U.S. Department of Commerce.
 24. Whitehead, J. A., R. C. Beardsley, K. Brink, J. Pedlosky, F. H. Busse, and **M. Ghil**, 1996: Geophysical fluid dynamics. In *Research Trends in Fluid Dynamics: Report from the United States National Committee on Theoretical and Applied Mechanics*, J. L. Lumley, A. Acrivos, L. G. Leal and S. Leibovich (Eds.), American Institute of Physics, Woodbury, NY, pp. 310–321.
 25. **Ghil, M.**, and K. Ide, 1997: Introduction, *Data Assimilation in Meteorology and Oceanography: Theory and Practice*, Meteorological Society of Japan and Universal Academy Press, Tokyo, pp. i–iii.

26. Saunders, A., **M. Ghil**, and D. Neelin, 1997–2001: Forecasts of Niño-3 SST anomalies and SOI based on singular spectrum analysis combined with the maximum entropy method, *Experimental Long-Lead Forecast Bulletin*, **Vol. 6**, No. 3, pp. 43–44; subsequent quarterly issues published also electronically, <http://grads.iges.org/ellfb>.
27. **Ghil, M.**, 2000: The essence of data assimilation, or Why combine data with models?, Inaugural Lecture, in *Proc. 3rd WMO Int'l Symp. Assimilation of Observations in Meteorology & Oceanography* (Québec City, Canada, 7–11 June 1999), WMO Tech. Doc. WMO/TD-No. 986, Geneva, Switzerland, pp. 1–4.
28. Kondrashov, D., **M. Ghil**, and D. Neelin, 2002–present: Forecasts of Niño-3 SST anomalies and SOI based on singular spectrum analysis combined with the maximum entropy method, *Experimental Long-Lead Forecast Bulletin*, **Vol. 11**, No. 1, pp. xx–yy; quarterly issues published also electronically, <http://grads.iges.org/ellfb>.
29. Kao, J., D. Flicker, R. Henninger, **M. Ghil**, and K. Ide, 2003: Using the extended Kalman Filter for data assimilation and uncertainty quantification in shock-wave dynamics, in *4th International Symposium on Uncertainty Modeling and Analysis*, B. M. Ayyub and N. O. Attoh-Okine (Eds.), College Park, Maryland, 21–24 Sept. 2003, IEEE Computer Society Pub., 398–407.
30. **Ghil, M.**, 2003: “Did celestial chaos kill the dinosaurs?” Invited talk at the 183rd Annual General Meeting of the Royal Astronomical Society, *The Observatory*, **123** (No. 1177), pp. 328–333.
31. **Ghil, M.**, D. Kondrashov, F. Lott, and A. W. Robertson, 2003: Intraseasonal oscillations in the mid-latitudes: observations, theory and GCM results, in *Proc. ECMWF/CLIVAR Workshop on Simulation and Prediction of Intra-Seasonal Variability with Emphasis on the MJO*, 3–6 Nov. 2003, ECMWF, Reading, UK, pp. 35–53.
32. **Ghil, M.**, 2004: La variabilité climatique, le réchauffement anthropique et le processus du GIEC, in *Science du changement climatique, Acquis et controverses*, H. Le Treut, J.-P. van Ypersele, S. Hallegatte, J.-C. Hourcade and C. Weill (Eds.), pp. 30–31.
33. Stevens, B., Y. Zhang, and **M. Ghil**, 2005: Stochastic effects in the representation of stratocumulus-topped mixed layers, *Proc. ECMWF Workshop on Representation of Sub-grid Processes Using Stochastic-Dynamic Models*, 6–8 June 2005, Shinfield Park, Reading, UK, pp. 79–90.
34. Gaffney, S., A. Robertson, P. Smyth, S. Camargo, and **M. Ghil**, 2006: Probabilistic clustering of extratropical cyclones using regression mixture models, Technical Report UCS-ICS 06-02, Bren School of Information and Computer Sciences, University of California, Irvine, <http://www.datalab.uci.edu/papers-by-date.html>.
35. Camargo, S. J., A. W. Robertson, S. J. Gaffney, P. Smyth and **M. Ghil** (2005) ([PDF file](#)): Cluster Analysis of Western North Pacific Tropical Cyclone Tracks, *IRI Technical report No. 05-03*, The International Research Institute for Climate and Society, The Earth Institute, Columbia University.
36. **Ghil, M.**, et I. Zaliapin, 2006: Une nouvelle source de fractales : les équations booléennes avec retard, et leurs applications aux sciences de la planète, in *L'irruption des géométries fractales dans les sciences, Une apologie de l'oeuvre de Benoît Mandelbrot*, Editions de l'Académie Européenne Interdisciplinaire des Sciences, Paris, pp. 161–187.
37. Feliks, Y., and **M. Ghil**, 2007: Long-range forecasting — the scientific background in Joseph's interpretation to Pharaoh's dreams (in Hebrew with English abstract), *Judaea & Samaria Research Studies*, Y. Eshel (Ed.), **16**, 471–484.
38. **Ghil, M.**, 2008: ‘Nonlinear Physical Oceanography: A Dynamical Systems Approach to the Large Scale Ocean Circulation and El Niño’, by Henk A. Dijkstra, 2nd edition, Springer, 2007, 532 pp., *Geophys. Astrophys. Fluid Dyn.*, **102**(3), 327–329, doi: [10.1080/03091920701705686](https://doi.org/10.1080/03091920701705686).
39. Vivaldo, G., C. Taricco, S. Alessio, and **M. Ghil**, 2009: Accurate dating of the Gallipoli Terrace (Ionian Sea) sediments as a basis for reliable climate proxy series, *PAGES News*, **17**(1), 8–9.
40. Coluzzi, B., **M. Ghil**, S. Hallegatte, and G. Weisbuch, 2010: Boolean delay equations on networks: An application to economic damage propagation, [arXiv:1003.0793v1](https://arxiv.org/abs/1003.0793v1) [q-fin.GN].

41. **M. Ghil**, 2011: Climate dynamics as a dynamical systems problem (Hungarian title: Az éghajlat, mint dinamikai rendszer), in *Proceedings of the Meteorological Days 2010* (Met Napok 2010: 36. Meteorológiai Tudományos Napok 2010. November 18-19), Hungarian Academy of Sciences and Hungarian Meteorological Service, Budapest, DVD and PDF, ISBN 978 963 9931 05 3, pp. 3–6.
42. **Ghil, M.**, 2011: Toward a mathematical theory of climate sensitivity, *SIAM News*, **44**(9), November issue (2 pp.)
43. L. R. Scott, *et al.*, 2012: *Fostering Interactions Between the Geosciences and Mathematics, Statistics, and Computer Science*, Tech. Report TR-2012-02, Computer Science Department, University of Chicago, http://www.cs.uchicago.edu/files/tr_authentic/TR-2012-02.pdf.
44. Groth, A., **M. Ghil**, S. Hallegatte and P. Dumas, 2012: The role of oscillatory modes in U.S. business cycles, Fondazione ENI Enrico Mattei (FEEM) Working Paper 26.2012, <http://www.feem.it/userfiles/attach/20125101548154NDL2012-026.pdf>.
45. **Ghil, M.**, D. D’Onofrio, and A. Provenzale, 2013: Non linearità e stocasticità nella dinamica del clima, in *Il mutamento climatico: Processi naturali e intervento umano*, A. Provenzale (Ed.), Il Mulino, Torino, pp. 225–242.
46. Sella, L., G. Vivaldo, A. Groth, and **M. Ghil**, 2013: Economic cycles and their synchronization: A survey of spectral properties, Fondazione ENI Enrico Mattei (FEEM) Working Paper 105.2013, <http://www.feem.it/userfiles/attach/20131213123514NDL2013-105.pdf>.
45. Greco, G., D. Kondrashov, S. Kobayashi, M. Ghil, M. Branchesi, C. Guidorzi, G. Stratta, M. Ciszak, F. Marino, and A. Ortolan, 2015: Singular Spectrum Analysis for astronomical time series: Constructing a parsimonious hypothesis test, in *Proceedings INAF Conf. “The Universe of Digital Sky Surveys,”* November 2014, Observatory of Capodimonte, Naples, to be published in *Astrophysics and Space Science Proceedings*, edited by Longo, Napolitano, Marconi, Paolillo, and Iodice, Springer, [arXiv:1509.03342v1](https://arxiv.org/abs/1509.03342v1).