

Michael Ghil
BIBLIOGRAPHY

7 December 2019

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. **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/Tokyo, 449 pp.
3. **Ghil, M.**, and S. Childress, 1987: *Topics in Geophysical Fluid Dynamics: Atmospheric Dynamics, Dynamo Theory and Climate Dynamics*, Springer Science & Business Media; reissued in pdf by Springer in 2012, xv + 485 pp.
4. **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.
5. 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.
6. **Ghil, M.**, and J. Roux, 2010: *Mathématiques Appliquées aux Sciences de la Vie et de la Planète*, Dunod, Paris, 392 pp. + supplementary online material.
7. 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.
8. 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.
9. **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**.
10. Duane, G. S., C. Grabow, F. Selten, and **M. Ghil** (Eds.) 2017: *Synchronization in Large Networks and Continuous Media – Data, Models, and Supermodels*, Focus Issue in *Chaos*, **27**(12), Introduction + 14 papers (**126601–127003**), American Institute of Physics, Melville, NY 11747.
11. **Ghil, M.**, A. Haraux and J. Roux, 2018: *Mathematics for the Environment*, Springer, in preparation.
12. **Ghil, M.**, and J.J. Tribbia, 2018: *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.

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. Balgovid, 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.**, 1987: 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. A. 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.
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.
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, *Discr. 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 modelling hierarchy in climate dynamics and the geosciences, in *Stochastic Physics and Climate Modelling*, T. 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. Climate*, **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. Climate*, **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) 11,766–11,771, [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. Climate*, **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. Lacroix, 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. Climate*, **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. Science*, **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](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. Demaeyer, 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. Climate*, **28**, 7873–7893.
304. 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, Ch. 16 in *"The Universe of Digital Sky Surveys,"* edited by N. R. Napolitano, G. Longo, M. Marconi, M. Paolillo, and E. Iodice, *Astrophysics and Space Science Proceedings*, vol. **42**, Springer, pp. 105–107.
305. 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).
306. Colon, C., D. Claessen, and **M. Ghil**, 2015: Bifurcation analysis of an agent-based model for predator–prey interactions, *Ecol. Modelling*, **317**, 93–106.
307. Chekroun, M. D., **M. Ghil**, H. Liu, and S. Wang, 2016: Low-dimensional Galerkin approximations of nonlinear delay differential equations, *Discr. Cont. Dyn. S.*, **36**, 4133–4177.
308. 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>.
309. Walwer, D., E. Calais and **M. Ghil**, 2016: Data-adaptive detection of transient deformation in geodetic networks, *J. Geophys. Res. Solid Earth*, **121**, 2129–2152, doi:[10.1002/2015JB012424](https://doi.org/10.1002/2015JB012424).
310. 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).
311. 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.
312. 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).
313. 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).
314. 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.*, **73**(8), 3227–3248, doi: <http://dx.doi.org/10.1175/JAS-D-15-0297.1>.
315. 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. Bus. Cycle Res.*, **12**, 25–48, doi: [10.1007/s41549-016-0003-4](https://doi.org/10.1007/s41549-016-0003-4).
316. Von der Heydt, A. S., H. A. Dijkstra, R. S. W. van de Wal, R. Caballero, M. Crucifix, G. L. Foster, M. Huber, P. Köhler, E. Rohling, P. J. Valdes, P. Ashwin, S. Bathiany, T. Berends, L. van Bree, P. Ditlevsen, **M. Ghil**, A. Haywood, J. Katzav, G. Lohmann, J. Lohmann, V. Lucarini, A. Marzocchi, H. Pälike, I. Ruvalcaba Baroni, D. Simon, A. Sluijs, B. Stap, A. Tantet, J. Viebahn, and M. Ziegler, 2016: Lessons on climate sensitivity from past climate changes, *Current Climate Change Reports*, doi: [10.1007/s40641-016-0049-3](https://doi.org/10.1007/s40641-016-0049-3).
317. **Ghil, M.**, 2017: The wind-driven ocean circulation: Applying dynamical systems theory to a climate problem, *Discr. Cont. Dyn. Syst. – A*, **37**(1), 189–228, doi:[10.3934/dcdis.2017008](https://doi.org/10.3934/dcdis.2017008).

318. Carrassi, A., M. Bocquet, A. Hannart, and **M. Ghil**, 2017: Estimating model evidence using data assimilation, *Q. J. R. Meteorol. Soc.*, **143**, 866–880, doi: [10.1002/qj.2972](https://doi.org/10.1002/qj.2972).
319. Groth, A., Y. Feliks, D. Kondrashov, and **M. Ghil**, 2017: Interannual variability in the North Atlantic ocean's temperature field and its association with the wind-stress forcing, *J. Climate*, **30**, 2655–2678, doi: <http://dx.doi.org/10.1175/JCLI-D-16-0370.1>.
320. Vannitsem, S., and **M. Ghil**, 2017: Evidence of coupling in ocean–atmosphere dynamics over the North Atlantic, *Geophys. Res. Lett.*, **44**, 2016–2026, doi: [10.1002/2016GL072229](https://doi.org/10.1002/2016GL072229).
321. Boers, N., B. Goswami, and **M. Ghil**, 2017: A complete representation of uncertainties in layer-counted paleoclimatic archives, *Clim. Past*, **13**, 1169–1180, <https://doi.org/10.5194/cp-13-1169-2017>.
322. Groth, A., and **M. Ghil**, 2017: Synchronization of world economic activity, *Chaos*, **27**, 127002 (18 pp.), <http://dx.doi.org/10.1063/1.5001820>.
323. Boers, N., M. D. Chekroun, H. Liu, D. Kondrashov, D.-D. Rousseau, A. Svensson, M. Bigler, and **M. Ghil**, 2017: Inverse stochastic–dynamic models for high-resolution Greenland ice core records, *Earth Syst. Dynam.*, **8**, 1171–1190, <https://doi.org/10.5194/esd-8-1171-2017>.
324. Colon, C., and **M. Ghil**, 2017: Economic networks: Heterogeneity-induced vulnerability and loss of synchronization, *Chaos*, **27**, 126703 (21 pp.), doi: [10.1063/1.5017851](https://doi.org/10.1063/1.5017851).
325. Duane, G., C. Grabow, F. Selten, and **M. Ghil**, 2017: Introduction to focus issue: Synchronization in large networks and continuous media—data, models, and supermodels', *Chaos*, **27**, 126601 (9 pp.), doi: [10.1063/1.5018728](https://doi.org/10.1063/1.5018728).
326. Chekroun, M. D., **M. Ghil**, and J. D. Neelin, 2018: Pullback attractor crisis in a delay differential ENSO model, in *Nonlinear Advances in Geosciences*, A. Tsonis, Ed., Springer, doi: [10.1007/978-3-319-58895-7](https://doi.org/10.1007/978-3-319-58895-7), pp. 1–33.
327. Kondrashov, D., M. D. Chekroun, X. Yuan, and **M. Ghil**, 2018: Data-adaptive harmonic decomposition and stochastic modeling of Arctic sea ice, in *Nonlinear Advances in Geosciences*, A. Tsonis, Ed., Springer, pp. 179–206, doi: [10.1007/978-3-319-58895-7](https://doi.org/10.1007/978-3-319-58895-7).
328. Kondrashov, D., M. D. Chekroun, and **M. Ghil**, 2018: Data-adaptive harmonic decomposition and prediction of Arctic sea ice extent, *Dyn. Stat. Clim. Syst.*, **2018**, 1–23, doi: [10.1093/climsys/dzy001](https://doi.org/10.1093/climsys/dzy001).
329. Sainte Fare Garnot, V., A. Groth, and **M. Ghil**, 2018: Coupled climate-economic modes in the Sahel's interannual variability, *Ecol. Econ.*, **153**, 111–123, <https://doi.org/10.1016/j.ecolecon.2018.07.006>.
330. Pierini, S., M. D. Chekroun, and **M. Ghil**, 2018: The onset of chaos in nonautonomous dissipative dynamical systems: A low-order ocean–model case study, *Nonlin. Processes Geophys.*, **25**, 671–692, <https://doi.org/10.5194/npg-25-671-2018>, 2018.
331. Boers, N., **M. Ghil**, and D.-D. Rousseau, 2018: Ocean circulation, ice shelf, and sea ice interactions explain Dansgaard-Oeschger cycles, *Proc. Natl. Acad. Sci. USA*, www.pnas.org/cgi/doi/10.1073/pnas.1802573115 and www.pnas.org/lookup/suppl/doi:10.1073/pnas.1802573115/-/DCSupplemental.
332. **Ghil, M.**, A. Groth, D. Kondrashov, and A. W. Robertson, 2018: Extratropical sub-seasonal-to-seasonal oscillations and multiple regimes: The dynamical systems view, Ch. 6 in *The Gap Between Weather and Climate Forecasting: Sub-Seasonal to Seasonal Prediction*, A. W. Robertson and F. Vitart (Eds.), Elsevier, Amsterdam, pp. 119–142, <https://hal.archives-ouvertes.fr/hal-01910214/>.
333. Walwer, D., **M. Ghil**, and E. Calais, 2019: Oscillatory nature of the Okmok volcano's deformation, *Earth Planet. Sci. Lett.*, **506**, 76–86, <https://doi.org/10.1016/j.epsl.2018.10.033>.
334. Metref, S., A. Hannart, J. Ruiz, M. Bocquet, A. Carrassi, and **M. Ghil**, 2019: Estimating model evidence using ensemble-based data assimilation with localization – The model selection problem. [arXiv:1709.06635](https://arxiv.org/abs/1709.06635), *Q. J. R. Meteorol. Soc.*, **145**, 1571–1588, doi: [10.1002/qj.3513](https://doi.org/10.1002/qj.3513).
335. **Ghil, M.**, 2019: A century of nonlinearity in the geosciences, *Earth & Space Science*, **6**, 1007–1042, doi: [10.1029/2019EA000599](https://doi.org/10.1029/2019EA000599).
336. Marangio, L., J. Sedro, S. Galatolo, A. Di Garbo, and **M. Ghil**, 2019: Arnold maps with noise: Differentiability and non-monotonicity of the rotation number, *J. Stat. Phys.*, doi: [10.1007/s10955-019-02421-1](https://doi.org/10.1007/s10955-019-02421-1).
337. Prevost, P., K. Chanard, L. Fleitout, E. Calais, D. Walwer, T. van Dam, and **M. Ghil**, 2019: Data-adaptive spatio-temporal filtering of GRACE data, *Geophys. J. Int.*, **219**(3), 2034–2055.
338. **Ghil, M.**, and V. Lucarini, 2019: The physics of climate variability and climate change, *Rev. Mod. Phys.*, submitted, [arXiv:1910.00583](https://arxiv.org/abs/1910.00583), <https://arxiv.org/abs/1910.00583>.
339. **Ghil, M.**, and E. Simonnet, 2020: Geophysical fluid dynamics, nonautonomous dynamical systems, and the climate sciences, in *Mathematical Approach to Climate Change and its Impacts*, P. Cannarsa, D. Mansutti, and A. Provenzale (Eds.), Springer INdAM Series #38, Springer, pp. 3–74.

340. Feliks, Y., J. Small and **M. Ghil**, 2019: Global oscillatory modes in high-end climate modeling and observations, *Clim. Dyn.*, in review.
341. Rousseau, D.-D., P. Antoine, N. Boers, F. Lagroix, **M. Ghil**, J. Lomax, M. Fuchs, M. Debret, C. Hatté, O. Moine, C. Gauthier, D. Jordanova, and N. Jordanova, 2019: DO-like events of the penultimate climate cycle: the loess point of view, *Clim. Past Discuss.*, <https://doi.org/10.5194/cp-2019-122>.
342. Sato, Y., M.D. Chekroun, and **M. Ghil**, 2019: Convergence rate of snapshot attractors to random strange attractors, *Phys. Rev. Lett.*, [to be] submitted, ...

D. Miscellaneous (selected)

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>, *Geophys. J. Intl*
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. Dumas, P., **M. Ghil**, A. Groth, and S. Hallegatte, 2013: Dynamic coupling of the climate and macroeconomic systems, *Math. Social Sci.*, accepted.
46. **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.

47. 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> .
48. 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) .
49. **Ghil, M.**, 2018: Foreword to *Nonlinear Advances in Geosciences*, A. Tsonis, Ed., Springer, doi: [10.1007/978-3-319-58895-7](https://doi.org/10.1007/978-3-319-58895-7), pp. vii–viii.
50. Ogutu K. B. Z., F. D'Andrea, **M. Ghil**, and C. Nyandwi, 2017a, Coupled Climate–Economy–Biosphere (CoCEB) model – Part 1: Abatement efficacy of low-carbon technologies, Energy & Prosperity Chair Working Paper, <http://www.chair-energy-prosperity.org/wp-content/uploads/2017/01/publication-2017-coceb1-ogutu-ghil-andrea-nyandwi.pdf> .
51. Ogutu K. B. Z., F. D'Andrea F., and **M. Ghil**, 2017b: Coupled Climate–Economy–Biosphere (CoCEB) model – Part 2: Combining deforestation control with carbon capture and storage technologies. Energy & Prosperity Chair Working Paper, <http://www.chair-energy-prosperity.org/wp-content/uploads/2017/08/publication-2017-coceb2-ogutu-ghil-andrea.pdf> .
52. Ghil, M., S. L. Marcus, J. O. Dickey, and C. L. Keppen, 1991: AAM The Movie, 7'56" video, Digital Image Animation Laboratory, Jet Propulsion Laboratory, Pasadena, CA; available at <https://academiccommons.columbia.edu/doi/10.7916/D8X36F5B> .