CURRICULUM VITAE

Alexander Khain

(updated, October 2018)

1. PERSONAL

Born: 1946, Moscow, USSR, January 6, 1946
ID#: 307339028
Citizenship: Israeli
Marital Status: Married to Dina, three children
Address: Bar Kochva str, 58/5, Jerusalem, Israel; 972-2-6560145
Office: The Institute of the Earth Science, The Hebrew University of Jerusalem 91904, Givat Ram, Israel
Office: 972-2-6585822,
Fax: 972-2-5662581,
Mobile: 972 507168069
E-mail: alexander.khain@mail.huji.ac.il

2. ACADEMIC BACKGROUND

1972-1974. Ph.D. in Geophysics, Institute of Experimental Meteorology, Obninsk, USSR, Thesis Research: "Some problems of cellular convection in the turbulent atmosphere". Advisor: Professor, the Member of the Russian Academy of Sciences V. I. Ivanov.

1968 -1970 M.Sc., Electronics, Theoretical Physics, *Cum laude* The Moscow University of Electronics; USSR. Thesis Research: Utilization of lasers in the atmosphere measurements. Advisor: Prof. A. Tarasov.

1964 -1967 B.Sc. Electronics, Theoretical Physics,, The Moscow University of Electronics, USSR

3. ACADEMIC POSITIONS

Adjunct Professor, University of Rhode Island since 2009

Full Professor since 2001
The Institute of Earth Sciences, The Hebrew University of Jerusalem

Visiting Professor (Sabbatical). The Geophysical Fluid Dynamics Laboratory, 2000
Princeton Univ., USA

Associate Professor, permanent position, The Institute of Earth Sciences, 1996-2001
The Hebrew University of Jerusalem

Associate Professor, 1991 - 1996
The Institute of Earth Sciences, The Hebrew University of Jerusalem

Senior scientific researcher, Chief of a scientific group 1986-1990
The Scientific Hydrometeorological Center, Moscow, the USSR

Senior scientific researcher, 1974-1986
The Scientific Hydrometeorological Center, Moscow, the USSR

Scientific researcher, 1970-1972
The Moscow Instrument Development Research Institute

4. PROFESSIONAL ACTIVITIES

Participation in Scientific Societies
The American Meteorological Society
The American Geophysical Union
The Israel Meteorological Society
The Israel Aerosol Association
The Israel Physical Society

Awards

Guastella Foundation (1991-1994)
Permanent position of the Associate Professor (1995)
Permanent position of the Full Professor (2001)

Editing
A guest Editor of *Atmospheric Research*. A member of the Editor Board of *Atmospheric Research*.

Reviewing

Reviewer of the following scientific journals and Foundations: *Atmospheric Research, Meteorology and Hydrology, Atmospheric and Oceanic Physics, Journal of the Atmospheric Sciences, Monthly Weather Review, Journal of the Aerosol Sciences, Journal of Engineering Mathematics, Atmosphere and Ocean, Geophysical Research Letters, Journal of Geophysical Research, Journal of Climate, Atmosphere, Science, Binational Israel-US Science Foundation, The National Science Foundation (USA), etc.*

Organization of conferences and Award Committees of
1. Tenth Annual Meeting of Israeli Association for Aerosol Research, 1996
2. International Workshop on Trends and Advances in numerical modeling of clouds and precipitation (together with Tel-Aviv University), Israel, Nov. 1997

3. First Israel-Germany Bi-National Workshop: Trends in Aerosol Research: Atmospheric and Industrial Aerosols, Israel, June, 1998
4. 14-th Annual Meeting of Israeli Association for Aerosol Research, 2000
5. The membership in the Junge Award Committee, 1999-2007.
6. 15-th Annual Meeting of Israeli Association for Aerosol Research, 2003
7. **23-th** Annual Meeting of Israeli Association for Aerosol Research, 2010
8. COST WG4 workshop, Jerusalem 2012

5. RESEARCH INTERESTS

Dynamics and thermodynamics of the atmosphere; Theoretical and numerical cloud physics. Microphysical processes in clouds. Cloud-aerosol interactions. Radar meteorology. Atmospheric turbulence. Motion and interaction of inertial particles in a turbulent flow; Tropical cyclones and their interaction with the ocean; Lightning in hurricanes, thunderstorms;
Theory of atmospheric boundary layer, Cellular convection; Breezes, hail storms. Weather modification, precipitation enhancement and fog elimination. Numerical modeling of cloud-related atmospheric processes.

6. RESEARCH GRANTS

1. Influence of tropical cyclone-ocean interaction on the evolution and motion of tropical cyclones. *The Binational US-Israel Science Foundation*. PIs: A. Khain and I. Ginis (University of Rhode Island). From 1.10.92 to 1.10.95. $ 70,000
2. Simulation of cloud development and transport of aerosols and pollutants. *The Israel Ministry of Sciences and Humanities*. PIs: A. Khain and H. Stainberger (The Hebrew University of Jerusalem). From 1.04.93 to 31.03.96. $ 50,000.
3. Investigation of processes of rain formation in convective clouds using multi-dimensional numerical models. *The Israel Science Foundation*. PIs: A. Khain and Z. Levin (Tel Aviv University). (1.10.94 -30.09.97). $ 330,000.
4. Numerical Investigation of Binary Tropical Cyclones and Their Interaction with the Ocean. *Binational US-Israel Science Foundation*. PIs: A.P. Khain and I. Ginis (University of Rhode Island). From 1.09.96 to 31.08.99. $ 70,000
5. Turbulence Effects on the Microphysical Processes in Clouds and on the Wet Scavenging of pollutants. *The German-Israel Foundation for Scientific Research and Development (GIF).* PIs: A.P. Khain, H. Pruppacher (University of Mainz), T. Elperin (Ben Gurion Univ.). (1.01.97 to 30.6.2000). DM 363,000.
6. Investigation of transport of aerosol and gaseous pollutants. *The Ring Family Foundation*. PI: A. P. Khain. (1.04.97 to 31.03.98). $ 5,000
7. Investigation of Cloud-radiation interaction using a cloud ensemble model. *The Israel Ministry of Science and Technology*. PI: A. Khain (1.12.95- 30.11.98). $ 40,000
8. Investigation of the coupling of microphysical and radiational properties in a cloud ensemble model. *The Israel Ministry of Science and Technology.* PIs: A.P. Khain, I. Joseph (Tel-Aviv Univ.), T. Elperin (Ben-Gurion Univ). (1.04.97 to 31.03.2000) $ 200,000

9. Motion and interaction of inertial particles in the turbulent flow. *The Israel Science Foundation*. 572/97-13.0 PI: A.P. Khain and S. Lehtmacher (Technion). (1.10.98-30.09.2000). $ 180,000
10. Additional Water by Means of Cloud Seeding. *Ministry of Science and Bundesministerium für Bildung, Wissenschaft, Forschung und Technologie.*_ PIs: A. P. Khain (HUJ), K. Beheng (University Karlsruhe); (1.01.2000- 31.12. 2002). 300,000 DM
11. Turbulence effects on drop collisions and droplet size spectrum broadening. *The Israel Science Foundation*. PIs: M. Pinsky, A.P. Khain (1.10.99-31.9.2003). $ 250,000
12. Effect of ice crystals and droplets' collection by porous snowflakes on precipitation formation in mixed-phase turbulent clouds. The S.A. *Shonbrunn Research endowment Fund*, PI A.P. Khain, 2001. $ 10,000
13. Investigation of precipitation simulation in a mesoscale model (MM5) using spectral(bin) microphysics. P.I.: A.P. Khain, and J. Dudhia, Proposal 2000215 supported by the *Binational USA-Israel Science Foundation* (2001-2004) $ 70,000.
14. Seeding of charged small particles with the purpose of rain enhancement, fog elimination and pollutant scavenging, *Horowich Fund*, 2002-2003 $170,000.
15. Development of generic Earth observation technologies. EC research project EUROPEAN SATELLITE RAINFALL ANALYSIS AND MONITORING AT THE GEOSTATIONARY SCALE co-funded by the Energy, Environment and Sustainable Development Programme, Contract number EVG1-2000-00030, 2002-2004. $100,000
16. Co-investigator The EC research project SMOGG. (2002-2004)
17. Determination of conditions for enhancing and redistributing precipitation by natural and anthropogenic seeding. *The Israel Ministry of Sciences and Bundesministerium für Bildung, Wissenschaft, Forschung und Technologie (BMBF)* PI. A. Khain (HUJI), K. Beheng (University Karlsruhe) grant WT 403-1868 (2004-2006), 120,000 Euro
18. Grant *Herman-Shapiro* 2005 PI. Khain A. P. 25,000$.
19. Anthropogenic Aerosols Triggering and Invigorating Severe Storms "ANTISTORM", Co-I, *European Project*, 2005-2006.
20. Investigation of aerosols effects on precipitation in Israel. *The Israel Ministry of Science*. 60,000$.
21. Utilization of spectral microphysics models for investigation of efficiency of new methods for rain enhancement. *The Israel Water Company*, grant 162/03. 2005-2007, 200,000 NIS
22. Aerosol effects of genesis and decay of hurricanes, *The Israel Science Foundation*, grant 140/07, 2007-2011, 652.000 NIS
23. Investigation of microphysical processes in clouds using polarimetric radar measurements coupled with detailed microphysics cloud model. *Binational US-Israel Science Foundation,* Grant 2006437, 2007-2011, $ 106,000.
24. New efficient method of rain control. *The Israel Water Company*, 2009, 90,000 NIS
25. Hurricane Aerosol Mitigation Project, *US Dept. of Homeland Security(*2009-2010). $155,000
26. Investigation of hazardous weather events using polarimetric radar and cloud model. *Binational US-Israel Science Foundation*, 2010446, 2012-2014, $112,000
27. Improvement of representation of the cloud-aerosol interaction in large-scale models . The Office of Science (BER), *U.S. Department of Energy,* grant DE-SC0006788 (2012-2014), $563,000.

29. Investigations of microphysical processes in clouds using spectral cloud models coupled with polarimetric radar measurements at multiple frequencies. *Department of Energy of US*. The Office of Science (BER), U.S. ASR FOA DE-FOA-0000647 (2012-2014), $240,000
30. Microphysical and thermodynamic retrievals in deep convective clouds using polarimetric radar measurements and spectral cloud models with explicit treatment of aerosol impact on convective processes. *Department of Energy, USA*. ER65459 US DoE System Research Program, (2015-2018) $ 180,000.
31. Investigations of change of microclimate. *Israel Ministry of Defense*, 4440519386, 2015. 150,000 NIS.
32. Elimination of warm fog: Field experiment and theoretical study. *Israel Ministry of Defense*, 2016-2017, 4440744897, 300.000 NIS.
33. ARM shortwave spectrometers for studying the clear-cloudy transition zone and mixing process. *Department of Energy, USA*. DE-FOA-0001638, US DoE System Research Program, (2017-2020) $192.000
34. Effects of turbulent mixing on cloud microphysics at the cloud edges. *Israel Science Foundation*, 2027/17 (2018-2020). 600,000 NIS.
35. High concentrations of ice: investigations using polarimetric radar observations combined with in situ measurements and cloud modeling. *Department of Energy, USA*. 0000237884, (08/15/2018- 08/14/2021) $521,748
36. DoE PNNL- Computationally efficient advection schemes -16/7/2019 30/09/2020, .$ 81,425

Member of advisory board:

1.Scientific projects of NASA (the Goddard Space Flight Center) and the Center for Climate System Research, University of Tokyo.(2000-2005)

2. European Project: Polarimetric signatures of ice microphysical processes and their interpretation using in-situ observations and cloud modeling (POLICE) (2018-2023)

7. TEACHING

A. Graduate students

Tzvika Slovin, graduated *cum laude* (1993) Topic: Numerical simulation of long-lasting convective clouds

Avner Furshpan, graduated *cum laude* (1997). Topic: Effects of topography on the coastal circulation in the Eastern Mediterranean

Nir Benmoshe graduated with the mark 96 (2006). Topic: microphysical processes in polluted clouds

Leehi Magaritz graduated with the mark 98(2008): Topic: mechanisms formation of drizzle in sratiform clouds

Naftali Cohen (since 2006-2008). Topic: Effects of aerosols on lightning and intensity of tropical cyclones, graduated with the mark 95 (2008)

Jacob Shpund (since 2009) Topic: Effects of sea spray of surface fluxes and cloud microphysics

B. Ph.D.

E. A. Agrenich (1988). Topic: Evolution of tropical cyclones - numerical modeling

M.A. Yarmolinskaya (1990). Topic: Interaction of convection and a background flow in the atmospheric boundary layer

I*gor L. Sednev* (1997). Topic: Simulation of precipitation formation in the Eastern Mediterranean coastal zone using a spectral microphysics cloud ensemble model

Adit Arazi (together with Prof. Sharon, A. Huss, I. Marer) (1997). Topic: Effect of small-scale topography on the precipitation distribution

Mitia Frumin (graduated at 2003). Topic: Investigation of interaction and motion of binary tropical cyclones

Yaron Segal (graduated at 2004). Topic: Formation of droplet size spectrum in clouds and the effects of seeding on cloud microstructure.

Boris Grits (graduated at 2006). Topic: Formation of fine structure in turbulent clouds and its effect on the droplet size spectrum and precipitation.

Nir Benmoshe (since 2007). Topic: Effects of turbulence of cloud microstructure.

Zhitao (University of Rhode Island) (since 2009). Investigation of roll convection in the boundary layer under strong winds.

Eyal Ilotovich since 2012: Ice processes in cumulus clouds PhD

Jacob Shpund (since 2013) Topic: Effects of sea spray of convective clouds and hurricanes.

Leehi Magaritz-Ronen. PhD. 2016. Investigation of Fine Processes in the Formation of Microstructure and Precipitation in Stratocumulus Clouds

Qi Yu.(Amanda) 2018 China Scholarship Council –Hebrew University of Jerusalem Scholarship Program.

C. Postdoctorate students and scientific researchers

Dr. Mark Pinsky: (Postgraduate fellow, Topic: Turbulent effects on the motion and interaction of inertial drops 1994-1997, Senior Scientific Researcher till present (Gileady and Kamea Program) Topic: Turbulent effects on cloud microphysical processes

Dr. A. Pokrovsky: Scientific Researcher (from 1996 to present) (Gileady Program and Kamea Program). Topic: Development of spectral-microphysics cloud model.

Dr. B. Lynn: Scientific Researcher (from 2000 to present). Topic: Investigation of cloud-aerosol interaction on precipitation formation in cumulus clouds using a mesoscale spectral (bin)-microphysics cloud model.

Dr. Elena Morozovsky- Postgraduate fellow (from 2001 to 2004) (Lady Davis Foundation) Topic: Investigation of effects of cellular convection on the structure of the atmospheric boundary layer.

Dr. V. Archipov -Postgraduate fellow (from 2002 to 2004). Topic: Effects of salinity and charge of droplets on drop growth by condensation and collisions. Effects of droplet charge on precipitation formation in clouds and increase in visibility in fogs.

Dr. Yaron Segal Postgraduate fellow (from 2004 till present). Topic: effects of aerosols on cloud microphysics

Dr. Eyal Ilotoviz (from 2018). Topic: development of spectral bin microphysics cloud models

D. Courses:

- Dynamics of the Atmosphere (The Hebrew University, 82302) (4 credits)
- Tropical Meteorology (The Hebrew University, 82515) (4 credits)
- Physics of the Atmospheric Boundary Layer (The Hebrew University, 82510) (4 credits)
- Physical Processes in Atmospheric Numerical Models (The Hebrew University, 82813) (2 credits)
- Natural Hazards (The Hebrew University, 89515) (2 credits)
- Seminar in Atmospheric Sciences for graduate students (The Hebrew University, 82830) (2 credits)
- Numerical methods in models of atmosphere and ocean (The Hebrew University, 82820) (2 credits)
- Course of lectures on Cloud physics (the Indian Institute of Tropical Meteorology).

8. INVITED LECTURES

The Israel Institute of Technology -Technion, the Tel-Aviv University, the Ben-Gurion University of Negev, Weizmann Institute (Israel), the Princeton University(USA), the Massachusetts Technological Institute (USA), NASA(USA), NCEP(USA), National Center for Atmospheric research (USA), Florida State University (USA), University of Oklahoma(USA), the Rhode Island University (USA), the Geophysical Fluid Dynamic Laboratory(USA), Research Hurricane Center (USA), Stockholm University (Sweden), University of Uppsala (Sweden), the University of Mainz(Germany), The Max Plank Institute (Germany), University of Tokyo (Japan), Manchester University (MIST), Pacific North-West Laboratory (PNNL), Indian Institute of Tropical Meteorology (India), University of Nanjing (China), Academy of Science of Czech Republic, etc.

9. LIST OF PUBLICATIONS

Books and Chapters in Books

1. Ivanov, V.N. and A.P. **Khain**, 1975: Some problems of dry and moist cellular convection in turbulent atmosphere, The Institute Experimental Meteorol., Moscow, 110 p.

2. **Khain**, A.P. and G.G. Sutyrin, 1983: *Tropical cyclones and their interaction with the ocean*, Gidrometeoizdat, Leningrad (St. Petersburg), 241p.

3. **Khain,** A. P., 1984: *Mathematical modeling of tropical cyclones*, Gidrometeoizdat, St. Petersburg, 247p.
4. **Khain**, A.P., 1986: *Tropical cyclones*. Chapter 17 in "Guidebook of the methods if short range forecasting", Gidrometeoizdat, St. Petersburg, 566-605
5. **Khain** A. P. and Cohen, N.**,** 2009 Aerosol effects on lightning and intensity of landfalling hurricanes. Chapter in the book: *Hurricanes and Climate Change*, Eds J.B. Elsner and T.H. Jagger, Springer, 419 pp., the chapter 189-212.
6. **Khain** A. P. and B. Lynn 2010. Simulation of tropical cyclones using spectral bin microphysics. *Chapter 26,* in Book " *Tropical cyclone research*". InTech Open Access Publisher.

Authors

7. **Khain A.P.**, 2016: Representation of microphysical processes in cloud-resolving models. In book: *Parameterization of Atmospheric Convection*: Volume 2: Current Issues and New Theories, Pages. 275-357.
8. **Khain A. P.** and M. Pinsky; 2018: *Physical Processes in Clouds and Cloud modeling*. Cambridge University Press. 642 pp.

Papers in referred journals
(numbers in parentheses are the number of citations according to ISI and Google Scholars)

1. **Khain**, A.P., 1972: Triangular meters of cloud base height. *Proc. Hydrometeorological Instrument Development Research Institute*, 26, 26-47

2. **Khain**, A.P., 1972: Possible use of lasers in transmission meters for measurements of visibility in the atmosphere. *Proc. Hydrometeorological Instrument Development Research Institute*, 27, 3-15.

3. Ivanov. V.N. and A.P. **Khain**, 1974: Some problems of dry and moist cellular convection, *Geofizika*, 11.
4. Jelnin A., and **Khain A.P**., 1975: Accounting for humidity profiles for evaluation of the depth of the convective layer, *Soviet Meteorology and Hydrology*, No. 2, 44-47
5. **Khain, A.P.,** 1975: The factor of humidity in evaluations of height of convective layer of the atmosphere. *Soviet Meteorology and Hydrology*, No. 2, 44-47.
6. **Khain, A.P.,** 1975: An impact of humidity profile curvature on the initial stage of cellular convection. *Soviet Meteorology and Hydrology*, No. 4, 31-38.
7. Gutman, L.N. and **A.P. Khain,** 1975: On meteorological processes in the free atmosphere stipulated by the influence of topography, *Atmospheric and Oceanic Physics,* 11, 107- 117.
8. Ivanov,V. N. and **A. P. Khain**, 1975: The role of ground screening by cloudiness during cellular convection, *Atmospheric and Oceanic Physics*, 11, 1063-1066.
9. **Khain, A. P**., 1975: The effect of initial temperature impulse and relative humidity on the development of convection under different temperature gradients. *Proc. Institute Experim. Meteorol.,* 10(53), 125-130

10. Ivanov,V. N. and **A. P. Khain**, 1975: On dry and moist cellular convection in the atmosphere, *Atmospheric and Oceanic Physics*, 11, 1211-1219. (4, 8)
12. Ivanov,V. N. and **A. P. Khain,** 1975: On some feedbacks in turbulent atmosphere during the development of cellular convection, *Proc. Institute Experim. Meteorol.,* 10(53), 116-124.
12. Ivanov,V. N. and **A. P. Khain**, 1976: On characteristic values of Rayleigh numbers during the development of cellular convection in turbulent atmosphere, *Atmospheric and Oceanic Physics,* 12, 23-28. (1, 6)
13. **Khain, A. P.,** 1976: The effect of condensation heating on the circulation structure of a convective cell. *Atmospheric and Oceanic Physics*, 12, 213-217.(3,)
14. Ivanov,V. N. and **A. P. Khain**, 1976: On the maximum principle and the preferable wave number in dry and moist cellular convection. *Atmospheric and Oceanic Physics,* 12, 325.
15. **Khain, A.P**., 1976: Some results of numerical modeling of dry and moist cellular convection. *Proc. Hydrometeorol. Sci. Center,* 180, 89-99.
16. **Khain, A.P.,** 1976: On the stable wave length range in a two-dimensional model of dry and moist cellular convection. *Soviet Meteorology and Hydrology*, No. 10, 23-29.
17. **Khain, A.P.,** 1977: On the use of Conditional Instability of the Second Kind for atmospheric convection parameterization. *Soviet Meteorology and Hydrology*, No. 2, 103-108.
18. **Khain, A.P**., 1978: Methods of convective parameterization used in tropical cyclone modelling, In book: "*Typhoon-75*", 79-100 Gidrometeoizdat.

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19. **Khain, A.P**., and E.A. Agrenich, 1978: On the characteristics of the boundary and surface layers in tropical cyclones. *Soviet Meteorology and Hydrology*, No. 1, 24-34.
20. **Khain, A.P.,** 1978: Considering the factor of entrainment in convection parameterization. *Soviet Meteorology and Hydrology*, No. 6, 32-40.
21. **Khain, A.P**., 1980: Some results of numerical modeling of an axisymmetric tropical cyclone. In book: "*Typhoon-78*", 184-201, Gidrometeoizdat.
22**. Khain, A.P.,** G.G. Sutyrin and E. A. Agrenich, 1979: Interaction of oceanic and atmospheric boundary layers in tropical cyclones. *Soviet Meteorology and Hydrology*, No. 2, 45-56.
23. **Khain, A.P.,** 1979: A twelve-level axisymmetric numerical model of a tropical cyclone. *Soviet Meteorology and Hydrology*, No. 10, 23-37.
24. Sutyrin G.G. and **A. P. Khain**, 1979: Interaction of ocean and atmosphere in the zone of a moving tropical cyclone. *Dokl. Acad. Sci. USSR*, 249, N2, 467-470. (16, 20).
25. **Khain, A. P.,** and K. Rubinstein, 1978: On deep convection parameterization in numerical atmospheric models. *Proc. Hydrometeorol. Sci. Center*, 203, 47-73.
26. **Khain, A. P**, 1979: A method of moist convective adjustment. *Soviet Meteorology and Hydrology,* No. 12, 99-103.
27. **Khain, A.P.,** 1980: A response of an axisymmetric tropical cyclone to the changes of the ocean surface temperature and evaporation. *Soviet Meteorology and Hydrology*, No. 10, 59-63.

28. **Khain, A.P.,** 1981: Numerical modeling of tropical cyclone landfall. *Soviet Meteorology and Hydrology,* No. 9, 67-74.
29. **Khain, A.P**. and E. A. Agrenich, 1981: On methods of the wind turning angle calculation in the TC boundary layer. *Proc. Hydrometeorol. Sci. Center,* 224, 64-70.
30. **Khain, A.P**. and K. Gevorkian, 1981: On a dry convective adjustment method. *Proceed. Hydrometeorol. Sci. Center,* 224, 71-74 (in Russian).
31. **Khain, A. P.,** 1982: The role of evaporation and surface wind stress during a tropical cyclone landfall. In book: "*Tropical Meteorology*", Gidrometizdat.
32. **Khain, A. P.,** and G.G. Sutyrin, 1982: Numerical modeling of the interaction of a moving tropical cyclone and the upper oceanic layer. In book: "*Tropical Meteorology*", Gidrometizdat. (, 43)
33. **Khain, A. P.,** and E. A. Agrenich, 1982: On the interaction of cloud and undercloud layers in tropical cyclones and ITCZ. *Soviet Meteorology and Hydrology*, No. 3, 39-45.
34. **Khain, A. P.,** 1983: A numerical tropical cyclone model with simulation of latent heat release on resolvable scales. *Atmospheric and Oceanic Physics,* 19, 459-466. (1,)
35. Ivanov,V. N. and **A.P. Khain,** 1983: On parameters determining the frequency of tropical cyclone genesis. *Atmospheric and Oceanic Physics*, 19, 787-795.
36. **Khain, A. P.,** and E. A. Agrenich, 1983: On the role of air friction at the underlying surface in tropical cyclones' development. *Soviet Meteorology and Hydrology*, No. 10, 39-43.
37. **Khain, A. P.,** 1983: Effects of atmospheric humidity and initial vorticity on tropical cyclones' formation and development. *Soviet Meteorology and Hydrology*, No. 12, 62- 68.
38. **Khain, A. P.,** 1984: Comments on the compositional analysis techniques of tropical cyclones' observational data. *Meteorology and Hydrology*, No. 1, 33-39.
39. **Khain, A. P.,** 1984: Modeling of tropical cyclone development on various latitudes. *Soviet Meteorology and Hydrology*, No. 3, 37-41.
40. **Khain, A. P.,** 1984: Water vapor and potential heat content budgets of an axisymmetric tropical cyclone. *Meteorology and Hydrology*, No. 9, 23-31.
41. Sutyrin, G. G., and **A.P. Khain,** 1984: On the effect of air - ocean interaction on the intensity of a moving tropical cyclone. *Atmospheric and Oceanic Physics*, 20, 787-794. (10, 43)
42. **Khain, A. P.,** 1985: Forecasts of TC movement using baroclinic models- a review. *Proc. Hydrometeorol. Sci. Center,* 264, 61-80.
43. **Khain, A. P.,** and M. Yarmolinskaya, 1985: A new method of parameterization of deep convection *Proc. Hydrometeorol. Sci. Center*, 264, 125-138.
44. **Khain, A. P.,** M. G. Yarmolinskaya, L. Kh. Ingel, 1986: Numerical modeling of interaction of convective and large-scale processes in the atmospheric boundary layer with the formation of a temperature inversion. *Atmospheric and Oceanic Physics*, 22, 987- 993.(4,)
45. Ivanov,V. N. and **A.P. Khain,** 1986: Research of tropical cyclones in the USSR (invited paper), *Proc. Institute Experim. Meteorol.*, 39(122), 3-15.

46. **Khain, A. P.,** 1987: Budgets of the angular momentum and kinetic energy of an axisymmetric tropical cyclone. Proc. Hydrometeorol. Sci. Center, 291, 129-142 (in Russian).
47. **Khain, A. P.,** and E. A. Agrenich, 1987: A hydrodynamic method of forecasting tropical cyclone intensity based on the method of a self-adopting model. *Meteorology and Hydrology*, No. 6, 65-71.
48. **Khain, A. P.,** 1987: Evaluation of the influence of eddy and angular momentum fluxes on TC development and structure using the results of numerical simulation. *Proc. Institute Experim. Meteorol*., 42(127), 70-77 (in Russian).
49. **Khain, A. P.,** and E. A. Agrenich, 1987: Possible effect of atmospheric humidity and radiation heating of dusty air on tropical cyclone development. *Proc. Institute Experim. Meteorol*., 42(127), 77-80.
50. **Khain, A. P.,** 1988: A three-dimensional numerical model of a tropical cyclone with allowance for the beta-effect. *Atmospheric and Oceanic Physics*, 24, 266-271. (1,)
51. **Khain, A. P.,** and L. Kh. Ingel, 1988: A numerical model of the atmospheric boundary layer above the ocean in the presence of convection. *Atmospheric and Oceanic Physics*, 24, 24-32. (2,)
52. Khvorostyanov, V.I., **A.P. Khain,** and E.L. Kogteva, 1989: A two-dimensional non stationary microphysical model of a three-phase convective cloud and evaluation of the effects of seeding by a crystallizing agent. *Soviet Meteorology and Hydrology*, No. 5, 33-45.
53. Ginis, I. D., Kh. Zh. Dikinov, **A.P. Khain,** 1989: A three-dimensional atmosphere- ocean model in the zone of a tropical cyclone. *Dokl Acad Sci. USSR*, 307, 333-337. (14,)
54. Alvares, A, E., A. Agrenich, R. Parrado and **A.P. Khain,** 1991: The results of a test of the hydrodynamic method of tropical cyclone intensity prediction. *Soviet Meteorology and Hydrology*, 1991, N 9, 103-105.
55. Agrenich, E.A., and **A.P. Khain,** 1991: The results of a test of the dynamical- statistical method of prediction of tropical cyclone intensity. *Soviet Meteorology and Hydrology*, N 12, 101-105.
56. **Khain, A. P.,** and I. D. Ginis, 1991: The mutual response of a moving tropical cyclone and the ocean. *Beitr. Phys. Atmosph*., 64, 125-142. (39 ,64)
57. Falkovich, A.I., **A.P. Khain,** and I. Ginis, 1992: Simulation of the development and movement of tropical cyclones using a coupled ocean-atmosphere model. *Meteorology and Hydrology*, 1992, N 2, 23-39.
58. Falkovich, A. I., **A.P. Khain,** and I. D. Ginis, 1993: Generation and movement of two interacting tropical cyclones in a coupled atmosphere-ocean model with nested movable grids. *Soviet Meteorology and Hydrology*, 1993, N7, 44-51.
59 **Khain, A.P.,** D. Rosenfeld and I. L. Sednev, 1993: Coastal effects in the Eastern Mediterranean as seen from experiments using a cloud ensemble model with a detailed

description of warm and ice microphysical processes. *Atmospheric Research*, 30, 295- 319. (27, 37)

60. Falkovich, A. I., **A.P. Khain,** and I. D. Ginis, 1995: The influence of the air-sea interaction on the development and motion of a tropical cyclone: numerical experiments with a triply nested model. *Meteorology and Atmospheric Physics*, 55, 167-184. (17, 22)
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