

Dr. Themistoklis Chronis

Clinical Assistant Professor (appointed 08/2017), Physics

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Work experience, professional degrees and certifications

Research Scientist, UAH/ESSC and part-time Instructor (Physics)
(11/2012-07/2018)

Associate Professor, Hellenic Center for Marine Research (Greece,
2008-2012)

Post Doctoral Fellow, NASA/MSFC (2006-2008)

Lecturer, University of Connecticut, (2004-2006)

Ph. D., Env. Engineering, University of Connecticut, (2000-2004)

Masters, Env. Engineering, Stevens Institute of Technology, (1998-2000)

Bachelors, Geology and Oceanography, University of Athens, Greece
(1991-1996)

Awards and Fellowships

Teaching Excellence Award, UAH College of Science 2020

NASA-GOES-R Group Achievement Award, UAH, 2018

Individual Investigator Distinguished Research, UAH, 2014

Distinguished Invited Lecturer Series, UAH, 2014.

Post-Doctoral Fellowship, NASA-Marshall Space Flight Center, 2006-2008

Graduate Student Fellowship, NASA-Marshall Space Flight Center,
2000-2004

Excellence in Research, Gerondelis Foundation, 2003

Award of Excellence in Research, UCONN, 2003

NASA-Group Achievement Award, UCONN, 2002

Exploring Career Options in Engineering and Science, Stevens Institute of Technology, 1999

UAH Undergraduate Laboratory Physics Manuals

<https://sites.google.com/uah.edu/chronis/home/ph-114>

<https://sites.google.com/uah.edu/chronis/home/ph-115>

<https://view.genial.ly/5ff88f75222af30da76486d1>

Peer-Reviewed Papers and Academic Book Chapters

[40+ conference papers, available upon request]

Anagnostou, E and Chronis,T., [2004], The worth of long range lightning observation on over land precipitation estimation, Advances in Global Change, Kluwer Academic Publishing.

Pittman J., Chronis T., Robertson, F, and Miller, T., [2008], Book Chapter-Electrification in Hurricanes: Implications for Water Vapor in the Tropical Tropopause Layer, Hurricanes and Climate Change, edited by J. B. Elsner and T. H. Jagger, Springer

Anagnostou, E.N., T. Chronis, and D.P. Lalas [2002], New Receiver Network Advances in Long-Range Lightning Monitoring, EOS-Transactions, Vol. 83, No. 50, 594-595.

Chronis T. and Anagnostou E., [2003], Error analysis for a long-range lightning monitoring network of ground-based receivers in Europe, J. Geophys. Res., Vol.108, No.D24, 4779.

Chronis T., Anagnostou E and Dinku T. [2004], High frequency estimation of thunderstorms via Satellite Infrared and a long-range lightning network in Europe, Quarterly Royal Meteorological Society Vol.130 April 2004 Part B No. 599.

Papadopoulos, A., T. Chronis, and E. N. Anagnostou, [2005], Using lightning to predict storm precipitation, Bulletin of the American Meteorological Society 86 [8], pp. 1057-1059.

Papadopoulos, A., T. Chronis, and E. N. Anagnostou, [2005], Improving Convective Precipitation Forecasting Through Assimilation of Regional Lightning Measurements in a Mesoscale Model, Monthly Weather Review, Vol. 133, 1961–1977.

Chronis, T., and E.N. Anagnostou, [2006], Evaluation of a Long-Range Lightning Detection Network with Receivers in Europe and Africa, IEEE Transaction on Geosciences and Remote Sensing Volume 44, Issue 6, pp.1504 – 1510.

Williams E., Boldi R., Bor J., Satori G., Price C., Greengurg E., Takashashi Y., Yamamoto K., Chronis T., Anagnostou E., Smith D., Lopez L., [2006], Lightning flashes conducive to production and escape of gamma radiation to space, J. of Geophysical Research- Atmospheres VOL. 111, D16209, doi:10.1029/2005JD006447.

Chronis T., Williams E, Anagnostou E., [2006], Evidence of tropical forcing of the 6.5 wave from lightning observations over Africa, J. Atmos. Sci., 64, 3717-3721.

Chronis T., Williams E, Anagnostou E., Walt Petersen, [2007]: Lightning as a precursor of tropical cyclogenesis, Eos Trans. AGU, 88(40), 397, 10.1029/2007EO400001.

Chronis T., Williams E, Anagnostou E., [2007], Investigating possible links between African lightning and the 6.5 stratospheric wave, *Bulletin of the American Meteorological Society* 92 [9], pp. 256-258.

Chronis, T. G., S. J. Goodman, D. Cecil, D. Buechler, F. J. Robertson, J. Pittman, and R. J. Blakeslee, [2008], Global lightning activity from the ENSO perspective, *Geophys. Res. Lett.*, 35, L19804, doi:10.1029/2008GL034321.

Hazelton, B. J., B. W. Grefenstette, D. M. Smith, J. R. Dwyer, X.-M. Shao, S. A. Cummer, T. Chronis, E. H. Lay, and R. H. Holzworth, [2009], Spectral dependence of terrestrial gamma- ray flashes on source distance, *Geo. Res. Lett*, Vol. 36, L01108, doi:10.1029/2008GL035906.

Chronis, T., [2009], Investigating Possible Links between Incoming Cosmic Ray Fluxes and Lightning Activity over U.S., *J. Climate*, Vol.22, pp. 5748-5754.

Chronis T., [2009], Hydrological cycle in the Mediterranean Experiment, *EOS Transactions AGU*, Vol. 90, No. 46, doi:10.1029/2009EO460011

Chronis T., Papadopoulos, V., and Nikolopoulos, E., [2010], Nine years of hi-resolution, QuickScat observations over the Mediterranean, *International Journal of Climatology*, doi: 10.1002/joc.2213.

Chronis, T., Raitsos, D and Kassis, D., [2011], The summer North Atlantic Oscillation effect on eastern Mediterranean, *Journal of Climate* J. Climate, 24, 5584–5596.

Papadopoulos, V., Bartzokas, A., Chronis,T., and Ferentinos G., [2011], Factors regulating the air-sea heat fluxes regime over the Aegean Sea, (*Adv. Sci. Res.*, 6, 63-67, 2011 www.adv-sci-res.net/6/63/2011/, doi:10.5194/asr-6-63-2011)

Degu, M., Hossain, F., Niyogi, D., Pielke R., Shepherd, J., M, Voisin, N., and Chronis, T., The influence of large dams on surrounding climate and precipitation patterns, [2011], *Geophysical Research Letters*, Vol. 38, L04405, 7 PP, 2011doi:10.1029/2010GL046482

Papadopoulos, V.P., A. Bartzokas, T. Chronis, S. Ruiz, N. Zarokanellos and G.Ferentinos, [2011], Correlation between air-sea heat fluxes over the Aegean Sea and the total precipitable water over Europe and North Africa, doi: 10.1175/2011JCLI4197.1 (on line release, *Journal of Climate*)

Raitsos D.E., Hoteit I., Prihartato P.K., Chronis T., Triantafyllou G., Abualnaja Y., Red [2011], Sea warming; a climate driven abrupt change, *Geophysical Research Letters*, Vol. 38, L14601, 5 pp, doi:10.1029/2011GL047984

Chronis, T. G. [2012], Preliminary lightning observations over Greece, *J. Geophys. Res.*, 117, D03113, doi:10.1029/2011JD017063.

Velea, L., Chronis, T., Anagnostou, E., and Papadopolulos A., [2011], Comparative analysis of humidity characteristics for open sea and coastal areas in the Mediterranean, *Atmospheric Research* 113 (2012) 126–139.

Nastos, P. T., I.T. Matsangouras, T.G. Chronis, [2013], Spatio-temporal analysis of lightning activity over Greece — Preliminary results derived from the recent state precision lightning network, *Atmospheric Research*, ISSN 0169-8095, <http://dx.doi.org/10.1016/j.atmosres.2013.10.021>.

Josh Durkee, Ahmed M. Degu, Faisal Hossain, Rezaul Mahmood, Jesse Winchester, and Themis Chronis, [2014], Investigating the Effect of the “Land between the Lakes” on Storm Patterns. *J. Appl. Meteor. Climatol.*, 53, 1506–1524.

Chronis, T., K. Cummins, R. Said, W. Koshak, E. McCaul, E. R. Williams, G. T. Stano, and M. Grant, [2015], Climatological diurnal variation of negative CG lightning peak current over the continental United

States, J. *Geophys. Res. Atmos.*, 120, 582–589, doi:10.1002/2014JD022547.

Chronis, T., Lawrence D. Carey, Christopher J. Schultz, Elise V. Schultz, Kristin M. Calhoun, and Steven J. Goodman, [2015], Exploring Lightning Jump Characteristics. *Wea. Forecasting*, 30, 23–37.

Houssos E., Chronis, T., Fotiadi, A., and Hossain, F., [2015], Cluster Analysis of atmospheric circulation leading to intense dust storms over Solar Village, doi: <http://dx.doi.org/10.1175/MWR-D-14-00198.1>, *Monthly Weather Review*

Chronis T., et al., [2015], Characteristics of storms producing Terrestrial Gamma-ray Flashes doi: <http://dx.doi.org/10.1175/BAMS-D-14-00239.1>, *Bulletin of the American Meteorological Society*

Chronis, T., T. Lang, W. Koshak, R. Blakeslee, H. Christian, E. McCaul, and J. Bailey [2015], Diurnal Characteristics of Lightning Flashes Detected Over the São Paulo Lightning Mapping Array, *J. Geophys. Res. Atmos.*, 120, doi:10.1002/2015JD023960.

Chronis, T., W. Koshak, and E. McCaul [2016], Why do oceanic negative cloud- to-ground lightning exhibit larger peak current values?, *J. Geophys. Res. Atmos.*, 121, 4049–4068, doi:10.1002/2015JD024129.

Chronis T., and Koshak W., [2016], Global TRMM/LIS diurnal flash radiances DOI: <http://dx.doi.org/10.1175/BAMS-D-16-0041.1>, *Bulletin of the American Meteorological Society*

Roberts, O. J., G. Fitzpatrick, G. Priftis, K. Bedka, T. Chronis, S. McBreen, M. S. Briggs, E. Cramer, B. Mailyan, and M. Stanbro [2017], Terrestrial gamma-ray flashes due to particle acceleration in tropical storm systems, *J. Geophys. Res. Atmos.*, 122, 3374–3395, doi:10.1002/2016JD025799

W i n c h e s t e r
J.; Rezaul Mahmood; William Rodgers; Faisal Hossain; Eric Rap,
Joshua Durkee and Themis Chronis, [2017] A Model-
based Assessment of Potential Impacts of Man-
made Reservoirs on Precipitation, Earth Interactions (in print)

X Li, TJ Lang, J Mecikalski, T Castillo, K Hoover and Themis Chronis,
[2018] The Cyclone Global Navigation Satellite System (CYGNSS)-Analysis
and Data Assimilation for Tropical Convection, *J. Tech* Vol. 11.

Hoover, K.E., J.R. Mecikalski, T.J. Lang, X. Li, T.J. Castillo, and T.
Chronis, [2018] Use of an End-to-End-Simulator to Analyze CYGNSS. *J.*
Atmos. Oceanic Technol., **35**, 35–55, <https://doi.org/10.1175/JTECH-D-17-0036.1>

Priftis G., Lang, T., and Chronis T., [2018], Combining ASCAT and NEXRAD
Retrieval Analysis to Explore Wind Features of Mesoscale Oceanic Systems
Journal of Geophysical Research, Atmospheres

Cecil D., and Chronis T., [2018] Polarization Corrected Temperatures for
10-, 19-, 37-, and 89-GHz Passive Microwave Frequencies, *JAMC*

Tippet M., Leapore C., Koshak W., Chronis T., and VanHull B., [2019]
Performance of a simple reanalysis proxy for U.S. cloud-to-ground lightning,
Journal of Climatology

Alex B. Young, Lawrence D. Carey, Phillip M. Bitzer., Elise V. Schultz, Themis
Chronis, Kristin Calhoun Analyzing Total Lightning and the Lightning Jump
Algorithm Performance using Enhanced Verification from Hail Cases
[SUBMITTED]

Garg P, Nesbitt S., Lang T., Priftis G., Chronis T., Thayer J., Hence D., [2020] Identifying and Characterizing Tropical Oceanic Mesoscale Cold Pools using Spaceborne Scatterometer Winds 2019JD031812 JGR

Ongoing and Past Funding (PI and co-I)

Ongoing - NASA/MFSC, Lighting as an Indicator of Climate: Enhancements & New Developments 1/1/2015 - 3/31/2021

Ongoing - NASA/MSFC, Using Scatter Measured Vector Winds to Study High-Impact Weather Events, 1/1/2015 - 3/31/2021

NASA/MSFC, Interpretation of Passive Microwave Remote Sensing Data from the NASA TRMM and PMM Programs, 9/1/2014 - 3/31/2021

NASA/MSFC, Science Support for GLM Assimilation, 6/15/2013 - 3/31/2021

UAH/Individual Investigator Distinguished Research, Weather severity (hail, tornadic) assessment via lightning and ground-based radar characteristics, GIS-based thunderstorm clustering and analysis, 01/01/2014-31/12/2014

UAH/Distinguished Invited Lecturer Series, Global Electric Circuit, 01/01/2014-12/31/2014.

NASA/MSFC, Analysis and Interpretation of Satellite and Field Program Datasets to Investigate Hurricane Structure and Intensification, 9/1/2014 - 3/31/2017

NASA/MSFC, Exploring the Utility of the Planned CYGNSS Mission for Investigating the Initiation and Development, 6/16/2014 - 3/31/2021

NASA/SSC, Transiting of an Integrated 0-1 Hour First Flash Lightning Nowcasting, Lightning Amount and Jump Warning Capability, 3/26/2014 - 3/25/2017

European Science Foundation-Marie-Curie, Joint assimilation of satellite aerosol, cloud, and precipitation observations in numerical models to support climate and hydrologic applications, 01/012008-12/31/2011

European Science Foundation, Mediterranean Climate Variability, 01/012010-12/31/2010.

NSF, The ZEUS lightning monitoring network, 2000-2004

NASA/MSFC, North Africa Multidisciplinary Monsoon Analysis-NAMMA 2006,