

# Ufuk Utku Turuncoglu

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## PERSONAL

**Date of birth:** 09/05/1977

**Nationality:** Turkey

**Marital status:** Married to Melda Akinci on 14 February 2008

## PERFORMANCE SUMMARY

- **Web of Science** (last access, 26 May 2023)  
**h-index:** 11  
**sum of times cited:** 1282 (without self-citations 963)
- **Google Scholar** (last access, 30 Nov 2023)  
**h-index:** 13  
**sum of times cited:** 1987

## WORKING EXPERIENCE

- **Soft. Eng./Prog IV, National Center for Atmospheric Research (NCAR), Boulder, USA — 2023/...**  
Climate & Global Dynamics Lab (CGD), CESM Software Engineering Group (CSEG)
- **Soft. Eng./Prog III, National Center for Atmospheric Research (NCAR), Boulder, USA — 2019/2023**  
Climate & Global Dynamics Lab (CGD), CESM Software Engineering Group (CSEG)
- **Assist. Professor, Istanbul Technical University, Istanbul, Turkey — 2012/2019**  
Computational Science and Engineering Department, Computational Earth System Science Group
- **Visiting Scientist, The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy — 2011/2012**  
Projects: SHELL Caspian Sea Project (Predicting future Caspian Sea Level, CSL), Coupling RegCM4 with ROMS ocean model etc.  
Earth System Physics Section (ESP), Mentor: Filippo Giorgi / Nellie Elguindi
- **Research Scholar, National Center for Atmospheric Research (NCAR), Boulder, USA — 2008/2009**  
TDD/ESMI ESMF Project: Creating self-describing and standardized workflow-based environment for earth system science applications, Supervisor: Cecelia DeLuca
- **Research Assistant, Istanbul Technical University, Istanbul, Turkey — 2005/2012**  
Computational Earth System Science Group Member, ITU Informatics Institute HPC Lab System Administrator Group Member, ITU National High Performance Computing Center System Administrator Group Member & Application Support Scientist
- **Software Developer, Caretta Training and Consultation, Turkey — 2000/2002**  
Microsoft based Database Systems, MS SQL, MS Access, Visual Basic, ASP.NET based applications
- **ESOE (Ericsson Standard Office Environment) & ESGP (Ericsson Standard Groupware Platform) Project Member, Ericsson, Turkey — 1998/1999**  
Standardization of Ericsson software infrastructure

## EDUCATION

- **PhD, 2004/2011** — Istanbul Technical University, Informatics Institute, Computational Science and Engineering Programme (Grade: 3.72/4.00)
- **MSc, 2000/2003** — Istanbul Technical University, Eurasia Institute of Earth Science, Earth System Science Programme, Climate and Ocean Sciences Department (Grade: 3.64/4.00)
- **BSc, 1995/2000** — Istanbul Technical University, Faculty of Aeronautics and Astronautics, Meteorological Engineering (Grade: 2.67/4.00)

## TRAINING EXPERIENCE

- **Scientific Visualization Course (MSc + PhD), Lecturer**, Informatics Institute, Istanbul Technical University (Spring Semesters)
- **Object Oriented Programming Techniques, C++ (Preparatory Course), Lecturer**, Informatics Institute, Istanbul Technical University (Fall and Spring Semesters)
- **1<sup>st</sup> Regional Earth System Modeling Summer School | Lecturer +Trainer**, Istanbul Technical University, 5-7 Sept. 2016.
- **School on Parallel Programming and Parallel Architecture for HPC and Developer School for HPC applications in Earth Sciences + Symposium on HPC and Data-Intensive Applications in Earth Sciences (smr 2613) | (instructor)**, International Center for Theoretical Physics (ICTP), 27 Oct. – 14 Nov. 2014, Trieste, Italy
- **Parallel Programming with CUDA (Instructor)**, Informatics Institute (10-11 October 2013): Rapid CUDA Development
- **High Performance Computing & Programming School (Instructor)**, National Center for High Performance Computing (16-20 July 2007, 21 January-1 February 2008, 1-12 September 2008): Introduction to OpenMP I & II, Analysis of OpenMP Programs, OpenMP & MPI Hybrid Programming
- **Linux Admin Instructor/Total: 144 Hour** (3 Part - 27 October 2007-14 March 2008): Linux Services (FTP, Apache, Tomcat, SSH, Firewall, Squid Proxy vb.), Shell Programming, PERL Programming and Fundamental Linux Commands etc.
- **Parallel Numerical Algorithms & Tools Lab. Assistant** (Spring 2008)
- **Fundamentals of Informatics Software (HBM501) Lab. Assistant** (Fall & Spring 2007)
- **Introduction to Scientific & Engineering Computing in Fortran Lab. Assistant** (Fall & Spring 2005)

## TRAINING (selected)

- Introduction to Machine Learning, 7-8 Nov. 2023, Boulder, CO
- CUDA (GPGPU Mixed Programming with MPI and OpenMP, MultiGPU, Libraries, OpenACC), Train The Trainers, 10-06-2013 / 14-06-2013, Istanbul
- Java Programming Class (Intermediate/Advanced) at NCAR, Instructor: Tom Cargill April 2,7,9,14 2009
- Voltaire's Infiniband Training, 1 February 2007
- EnginFrame Professional Training, 22-23-24 January 2007
- Intel Software Collage Training (High Performance Application Tuning, Cluster Building, Programming for Multi-core Linux), November 2006
- CISCO CCNA IV (WAN Technologies), 2006 (CCNA Exam 7 October 2006, 707/849)
- Linux Certification Program (RedHat AS), BT Training, 22 May-6 June 2006
- CISCO CCNA III (Switching Basics and Intermediate Routing), 2006
- CISCO CCNA II (Routers and Routing Basics), 2005
- CISCO CCNA I (Networking Basics), 2005
- Regional climate modeling using PRECIS (Providing REgional Climates for Impacts Studies), WMO Regional Meteorological Training Center, Alanya, Turkey, 5-9 September 2005

- LSF HPC & HP Cluster Training, 2005
- Intel Overview GridWare and Cluster Tools, 2004
- Intel Trace Collector-Analyzer and Hands On, 2004
- The Intel UNICORE Client & UNICORE Projects, 2004
- SunTune, Application Performance Optimization on Sun Systems, 2002

## SCIENTIFIC CONFERENCES/WORKSHOPS (selected)

- ECO Training Course on "PRECIS - Regional Climate Model", 5-9 September 2005, Alanya, Turkey
- International Supercomputer Conference 2006 (ISC06), 27-30 June 2006, Dresden, Germany
- European Geosciences Union General Assembly 2007, 15-20 April 2007, Vienna, Austria
- Supercomputing (SC07), 10-16 November 2007, Reno, Nevada, USA
- European Geosciences Union General Assembly 2008, 13-18 April 2008, Vienna, Austria
- ROMS/TOMS European Workshop, 6-8 October 2008, Grenoble, France
- NCAR CCSM 14<sup>th</sup> Annual Workshop, 15-18 June 2009, Breckenridge, CO, USA
- 6th ICTP Workshop on The Theory and Use of Regional Climate Models, May 7-18, 2012, Trieste Italy
- 7th ICTP Workshop on The Theory and Use of Regional Climate Models, May 12-23, 2014, Trieste Italy
- ISENE2 Workshop on Workflow Solutions in Earth System Modeling, Jun 3-5, 2014, Hamburg, Germany
- The Third Workshop on Coupling Technologies for Earth System Models (CW2015), April 20-22, 2015, Manchester, UK
- The Fourth Workshop on Coupling Technologies for Earth System Models (CW2017), March 20-22, 2017, Princeton, NJ, USA
- GTC2018 GPU Technology Conference, March 26-29, 2018, San Jose, CA, USA
- Noah-MP Land Surface Model Tutorial: Model Physics, Code Structures, and Simulation Exercises, AMS 2024 Short Course, 28 Jan-1 Feb. 2024, Baltimore, MD. (instructor)
- Noah-MP Annual Users' Workshop, Tutorial about Introduction to Noah-MP component model in NOAA's UFS, May 23-25, 2023, Boulder, CO, USA. (instructor)

## OTHERS

### Software & Hardware

- **Operating Systems:** Linux (RedHat & SuSE, Admin Level), Unix (Solaris), Mac OS X
- **HPC & Cluster Software:** Platform LSF (Admin), Sun Grid Engine, Globus, Rocks, Ganglia
- **Programming Languages** C, C++, Fortran (77/90/95), Python, Java, Perl, Shell Programming (csh & bash)
- **Knowledge Base Languages & Tools:** RDF/OWL, Jena, Protege
- **Parallel Libraries:** MPI (Message Passing Interface), OpenMP, PVM (Parallel Virtual Machine), ESMF (Earth System Modeling Framework)
- **Database Systems:** MS Access, MS SQL, Postgres, MySQL
- **Visualization:** NCL (NCAR Command Language, Advance), PyNGL, Ferret, GMT, ParaView
- **Other:** CDO (Climate Data Operator), NCO (NetCDF Common Operator)
- **Hardware:** Infiniband & Myrinet performance networks. HP Cluster Systems (HP DL360, DL580), SunFire 12K SMP & SunFire V210 Cluster Systems, HP Superdome, Cray XT5, IBM BlueGene/L, SFS Parallel File System, Cisco Router Configuration

## PUBLICATIONS

### a) Publications in International Refereed Journals (21)

[21] Batibeniz, F., Öñol, B., **Turuncoglu, U.U.** and Raible, C.C., 2025. Air–sea interaction in medicanes with atmosphere–ocean–wave coupled regional climate simulations. Quarterly Journal of the Royal Meteorological

[20] Anav, A., Carillo, A., Palma, M., Struglia, M. V., **Turuncoglu, U. U.**, and Sannino, G., 2021. The ENEA-REG system (v1.0), a multi-component regional Earth system model: sensitivity to different atmospheric components over the Med-CORDEX (Coordinated Regional Climate Downscaling Experiment) region, *Geosci. Model Dev.*, 14, 4159–4185, <https://doi.org/10.5194/gmd-14-4159-2021>.

[19] Batibeniz, F., Ashfaq, M., Onol, B., **Turuncoglu, U.U.**, Mehmood, S., and Evans, K.J., 2020. Identification of major moisture sources across the Mediterranean Basin. *Climate Dynamics*, 54, 4109–4127. doi:10.1007/s00382-020-05224-3

[18] Batibeniz, F., Ashfaq, M., Diffenbaugh, N.S., Key, K., Evans, K.J., **Turuncoglu, U.U.**, and Onol, B., 2020. Doubling of U.S. Population exposure to climate extremes by 2050. *Earth's Future*, 8, e2019EF001421. doi:10.1029/2019EF001421

[17] Yilmaz, Y., Sen, O.L., **Turuncoglu, U.U.**, 2019: Modeling the hydroclimatic effects of local land use and land cover changes on the water budget in the upper Euphrates - Tigris basin, *Journal of Hydrology*, 576, pp:596-609, <https://doi.org/10.1016/j.jhydrol.2019.06.074>

[16] **Turuncoglu, U. U.**, 2019: Toward modular in situ visualization in Earth system models: the regional modeling system RegESM 1.1, *Geosci. Model Dev.*, 12, 233-259, <https://doi.org/10.5194/gmd-12-233-2019>.

[15] Falina, A., Sarafanov, A., Ozsoy, E., **Turuncoglu, U.U.**, 2017. Observed basin-wide propagation of Mediterranean water in the Black Sea. *Journal of Geophysical Research – Ocean*, DOI: 10.1002/2017JC012729

[14] **Turuncoglu, U.U.** and Sannino, G., 2016, Validation of newly designed regional earth system model (RegESM) for Mediterranean Basin, *Climate Dynamics*, DOI: 10.1007/s00382-016-3241-1

[13] Elguindi, N., Solmon, F., **Turuncoglu, U.U.** 2016, Quantifying some of the impacts of dust and other aerosol on the Caspian Sea region using a regional climate model, *Climate Dynamics*, 46(1), pp. 41-55, DOI: 10.1007/s00382-015-2566-5

[12] **Turuncoglu, U.U.** 2015, Identifying the sensitivity of precipitation of Anatolian peninsula to Mediterranean and Black Sea surface temperature, *Climate Dynamics*, 44(7-8), pp. 1993-2015, DOI: 10.1007/s00382-014-2346-7

[11] Elguindi, N., Grundstein, A., Bernardes, S., **Turuncoglu, U.U.**, Feddema, J., 2014. Assessment of CMIP5 global model simulations and climate change projections for the 21st century using a modified Thornthwaite climate classification, *Climatic Change*, 122(4), pp. 523-538, DOI: 10.1007/s10584-013-1020-0

[10] Onol, B., Bozkurt, D., **Turuncoglu, U.U.**, Sen, O.L., Dalfes, H.N., 2014. Evaluation of the twenty-first century RCM simulations driven by multiple GCMs over the Eastern Mediterranean–Black Sea region, *Climate Dynamics*, 42(7-8), pp. 1949-1965, DOI: 10.1007/s00382-013-1966-7

[9] Elguindi, N., F. Giorgi and **U.U. Turuncoglu**, 2014. Assessment of CMIP5 global model simulations over the sub-set of CORDEX domains used in the Phase I CREMA Experiment, *Climatic Change*, 125(1), pp. 7-21, DOI: 10.1007/s10584-013-0935-9

[8] **Turuncoglu, U.U.**, Giuliani, G., Elguindi, N., Giorgi, F., 2013. Modelling the Caspian Sea and its catchment area using a coupled regional atmosphere-ocean model (RegCM4-ROMS): model design and preliminary results, *Geosci. Model Dev.*, 6, pp. 283-299, DOI: 10.5194/gmd-6-283-2013

[7] **Turuncoglu, U.U.**, Elguindi, N., Giorgi, F., Fournier, N., Giuliani, G., 2013. Development and validation of a regional coupled atmosphere lake model for the Caspian Sea Basin, *Climate Dynamics*, 41(7-8), pp. 1731-1748, DOI: 10.1007/s00382-012-1623-6

[6] Giorgi, F., E. Coppola, F. Solmon, L. Mariotti, M.B. Sylla, X. Bi, N. Elguindi, G.T. Diro, V. Nair, G. Giuliani, **U.U. Turuncoglu**, S. Cozzini, I. Guttler, T.A. O'Brien, A.B. Tawfik, A. Shalaby, A.S. Zakey, A.L. Steiner, F. Stordal, L.C. Sloan, C. Brankovic, 2012. RegCM4: Model description and preliminary tests over multiple CORDEX domains. *Climate Research*, 52, pp. 7-29, DOI: 10.3354/cr01018

[5] **Turuncoglu U.U.**, Dalfes N., Murphy S., DeLuca C., 2012. Towards self-describing and workflow integrated Earth system models: a coupled atmosphere-ocean modeling system application, *Environmental Modeling and Software*, 39, pp. 247-262, DOI:10.1016/j.envsoft.2012.02.013

[4] Bozkurt D., **Turuncoglu U.U.**, Sen O. L., Onol B., Dalfes H. N., 2012. Downscaled simulations of the ECHAM5, CCSM3 and HadCM3 global models for the eastern Mediterranean-Black Sea region: Evaluation of the

reference period, *Climate Dynamics*, 39(1-2), pp. 207-225, DOI: 10.1007/s00382-011-1187-x

[3] Ozdemir, H., Unal, A., Kindap, T., **Turuncoglu, U.U.**, Durmusluoglu, Z. O., Khan, M., Tayanc., M., Karaca, M., 2012. Quantification of the urban heat island under a changing climate over Anatolian Peninsula. *Theoretical and Applied Climatology*, 108(1-2), pp. 31-38, DOI: 10.1007/s00704-011-0515-8

[2] **Turuncoglu U. U.**, Murphy S., DeLuca C., Dalfes N., 2011. A scientific workflow environment for earth system related studies, *Computers & Geosciences*, Vol. 37(7), pp. 943-952, DOI: 10.1016/j.cageo.2010.11.013

[1] Kindap, T., **Turuncoglu, U. U.**, Chen S., Unal, A., Karaca, M., 2009. Potential Threats from a Likely Nuclear Power Plant Accident: A Climatological Trajectory Analysis and Tracer Study\*, *Water, Air, & Soil Pollution*, Vol. 198, Num. 1-4, pp. 393-405, DOI: 10.1007/s11270-008-9853-2

## **b) Technical Documents (1)**

[1] Worthen, D., Wang, J., Montuoro, R., Heinzeller, D., Li, B., Theurich, G., **Turuncoglu, U.**, Rosen, D., Jovic, D., Curtis, B., Mahajan, R., Lei, H., Richert, A., Chawla, A., Wang, Jiande ; Meixner, Jessica ; Abdolali, Ali ; Masarik, Matthew ; Pan, Li ; Barlage, Michael ; Liu, Bin ; Vertenstein, Mariana ; Craig, Tony ; Benson, Rusty ; Robinson, Thomas ; Clune, Thomas ; Jiang, Weiyan ; Barton, Neil ; Vandenberghe, George ; Potts, Mark ; Kim, Jong ; Perlin, Natalie ; Book, Cameron ; Bernardet, Ligia ; Yang, Fanglin ; Sun, Shan ; Kim, Hyun-Sook ; Baker, Barry ; Huang, Jianping ; Jeon, Chan-Hoo ; Stajner, Ivanka, 2024. Coupling Infrastructure Capability in UFS Weather Model. <https://doi.org/10.25923/dv2-3g03> ([link](#))

## **c) Publications in International Journals (non SCI, 2)**

[2] **Turuncoglu, U. U.**, Onol, B., and Ilıcak, M., 2019. A new approach for in situ analysis in fully coupled earth system models. In *ISAV 2019: In Situ Infrastructures for Enabling Extreme-scale Analysis and Visualization*. Association for Computing Machinery (ACM): Denver, CO, US.

[1] **Turuncoglu U. U.**, 2017. Integration of ParaView Catalyst with Regional Earth System Model, *Kitware Source: Software Developer's Quaterly*, Vol. 42, pp. 7-10

## **d) Publications in National Referred Journals (1)**

[1] **Turuncoglu U. U.**, Dalfes N., 2011. Towards self-describing earth system models: a workflow application, *ITU Dergisi/d*, Vol. 10(3), pp. 105-115 (in Turkish)

## **e) Books (4)**

[4] **Turuncoglu, U.U.**, Turkes, M., Bozkurt, D., Onol, B., Sen, O.L., and Dalfes, H.N., 2018. *The Soils of Turkey*, Ed. Selim Kapur, Erhan Akca and Hikmet Gunal, *Climate (Chapter 3)*, Springer International Publishing, pp: 369, ISBN: 978-3-319-64392-2, DOI: 10.1007/978-3-319-64392-2.

[3] **Turuncoglu, U.U.**, Sannino, G., and Ozsoy, E., 2016. Challenges for Coupled Modeling of Inter-basin Exchange Applied to Turkish Strait System. *The Sea of Marmara – Marine Biodiversity, Fisheries, Conservation and Governance (Vol. 42)*, Ed. Emin Ozsoy, M. Namik Cagatay, Neslihan Balkis, Nuray Balkis, Bayram Ozturk. 981p, ISBN: 978-975-8825-34-9, Turkish Marine Research Foundation (TUDAV), Istanbul, Turkey

[2] Kindap T., Unal A., Ozdemir H., Bozkurt D., **Turuncoglu U.U.**, Demir G., Tayanc M., Karaca M., Chhetri N. (Ed.), 2012. Quantification of the Urban Heat Island Under a Changing Climate over Anatolian Peninsula, ISBN: 978-953-51-0847-4

[1] **Turuncoglu, U. U.**, 2012. *Earth System Modeling*, SpringerBriefs in Earth System Sciences. Tools for Configuring, Building and Running Models (Vol. 5) - Applying Scientific Workflow to ESM (Sec. 2). Series Editor: Rupert Ford. 70p, ISBN: 978-3-642-23931-1.

## **f) Publications in International Conferences (49)**

[49] Memari, S., Anderson, E.J., **Turuncoglu, U.**, Seroka, G., Fujisaki-Manome, A., 2025. Enhancing the Capabilities of the UFS Coastal Application: a Comprehensive Evaluation and Benchmarking of Hydrodynamics, *AMS 2025*, 12-16 Jan. 2025, New Orleans. (poster)

[48] UFS Coastal Model and Planned Applications: Updates and Path Forward

[47] Wang, J., Worthen, D., Jovic, D., Curtis, B., Sarmiento, D.P., Szapiro, N., Tsay, A., Rosen, D., Theurich, G., Vertenstein, M., **Turuncoglu, U.**, Liu, B., Edwards, J., Montuaro, R., Kim, J., Mahajan, R., Carley, J.R., 2025. UFS Weather Model Infrastructure Development. *AMS 2025*, 12-16 Jan. 2025, New Orleans. (abstract, oral)

- [46] Pham, A., Shekhar, S., Kershaw, H., Amrhein, D.A., **Turuncoglu, U.U.**, 2025. DART-X: Software Infrastructure for Prototyping in-Memory Data Transfer between Ensemble Data Assimilation and Coupled Earth Systems Models. AMS 2025, 12-16 Jan. 2025, New Orleans. (abstract, oral)
- [45] Shekhar, S., Pham, A., Amrhein, D.A., Kershaw, H., **Turuncoglu, U.U.**, 2025. A First Prototype for In-Memory Data Transfer Between Earth System Models and Data Assimilation. AMS 2025, 12-16 Jan. 2025, New Orleans. (abstract, oral)
- [44] Shekhar, S., Pham, A., Amrhein, D.A., Kershaw, H., **Turuncoglu, U.U.**, 2024. Optimizing Ensemble Data Assimilation performance in Community Earth System Models (CESM): A first prototype for in-memory data transfer between Earth System models and Data Assimilation, AGU 2024, 9-13 Dec. 2024, Washington, DC. (abstract, oral)
- [43] Pham, A., Shekhar, S., Kershaw, H., Amrhein, D.A., **Turuncoglu, U.U.**, 2024. DART-X: Software Infrastructure for Prototyping in-memory Data Transfer between Ensemble Data Assimilation and Coupled Earth Systems Models, AGU 2024, 9-13 Dec. 2024, Washington, DC. (abstract, oral)
- [42] Jablonowski, C., Wright, D.M., Fujisaki-Manome, A., Mroczka, B., Titze, D., Mann, G., Anderson, E.J., Yeo, A., **Turuncoglu, U.U.**, The Impact of Atmosphere-Lake Interactions on Lake-Effect Snowfall Forecasts in the Great Lakes Region, AGU 2024, 9-13 Dec. 2024, Washington, DC. (abstract, oral)
- [41] Velissariou, P., Rouge, B, LA., **Turuncoglu, U.**, Moghimi, S., Sun, Y., Wirasaet, D., Westerink, J., Zhang, Y.J., Lemmen, C., Meyers, E., 2024. Storm Surge Total Water Predictions Using the UFS-Coastal Modeling Framework: A Case Study for Hurricane Florence (2018). AMS 2024, 28 Jan-1 Feb. 2024, Baltimore, MD. (abstract, oral)
- [40] **Turuncoglu, U.**, Velissariou, P., Moghimi, S., Sun, Y., Wirasaet, D., Westerink, J., Zhang, Y.J., Lemmen, C., Qi, J., Li, S., Chen, C., Arango, H., Meyers, E., 2024. Development and Code Infrastructure of The Coastal Modeling Framework Based on Unified Forecast System (UFS-Coastal). AMS 2024, 28 Jan-1 Feb. 2024, Baltimore, MD. (abstract, oral)
- [39] Jablonowski, C., MI, A.A., Wright, D.M., Fujisaki-Manome, A., Mroczka, B., Titze, D., Mann, G., Anderson, E.J., Yeo, A., **Turuncoglu, U.**, 2024. Atmosphere-Lake Coupling Improves Lake-Effect Snowfall Forecasts in the Great Lakes Region. AMS 2024, 28 Jan-1 Feb. 2024, Baltimore, MD. (abstract, oral)
- [38] Sun, Y., Laurel, M.D., Velissariou, P., Moghimi, S., **Turuncoglu, U.**, Zhang, Y.J., Mani, S., Khazaei, B., Myers, E., 2024. Impacts of Wave-Current Interactions on Storm Surge during the Passage of Hurricane Ian (2022): An Application of the UFS-Coastal Modeling Framework. AMS 2024, 28 Jan-1 Feb. 2024, Baltimore, MD. (abstract, oral)
- [37] Barlage, M., Draper, C., **Turuncoglu, U.**, 2023. Enhancing Community UFS Land Model Development Through Advancing Land Component and Land Data Assimilation Capabilities. Unifying Innovations in Forecasting Capabilities Workshop, 24-28 July 2023, Boulder, CO. (poster)
- [36] Moghimi, S., Huang, M., Velissariou, P., Sun, Y., Myers, E., Allen, C., Fanara, T., Snowden. P.B., Lindley, C., Chawla, A., **Turuncoglu, U.**, Rosen, D., Lemmen, C., Zhang, J., Wirasaet, D., Westerink, J., Qi, J., Chen, C., Arango, H.G., Wilkin, J., Manome-Fujisaki, A., Domanti, C., Blackman, K., 2023. Developing the NOAA National Ocean Service Coastal Ocean Models Coupling Infrastructure (ufs-coastal). Unifying Innovations in Forecasting Capabilities Workshop, 24-28 July 2023, Boulder, CO. (abstract, talk)
- [35] Rosen, D., Theurich, G., **Turuncoglu, U.**, 2023. The Earth System Modeling Executable (ESMX): A Tool for Building and Testing NUOPC-Based Coupled Earth System Modeling Applications. Unifying Innovations in Forecasting Capabilities Workshop, 24-28 July 2023, Boulder, CO. (poster)
- [34] Velissariou, **Turuncoglu, U.**, Sun, Y., Moghimi, S., Abdolali, A., Myers, E., 2023. Development of the Next-Generation UFS Coastal Modeling Framework. Unifying Innovations in Forecasting Capabilities Workshop, 24-28 July 2023, Boulder, CO. (abstract, talk)
- [33] **Turuncoglu, U.**, Vertenstein, M., Worthen, D., Heinzeller, D., Oehmke, B., Dunlap, R., 2022. Towards an Exchange Grid Implementation within the UFS. Unifying Innovations in Forecasting Capabilities Workshop, 18-22 July 2022, Collage Park, MD.
- [32] Barlage, M., Dunlap, R., Draper, C., **Turuncoglu, U.**, Perket, J., Gholoubi, A., Guo, Z. and Dong, J., 2022. Enhancing Community UFS Land Model Development Through Advancing Land Component and Land Data Assimilation Capabilities, Unifying Innovations in Forecasting Capabilities Workshop, 18-22 July 2022, Collage Park, MD.

- [31] Kalina, E., **Turuncoglu, U.U.**, Tarhan, S., Rosen, D., Dunlap, R., Bernardet, L., Vertenstein, M., Liu, B., Chawla, A., Mehra, A., Friedman, K.L., DeLuca, C., 2021. Leveraging Community Tools to Improve the Usability, Portability, and Testing Capabilities of the Hurricane Analysis and Forecast System (HAFS). 34<sup>th</sup> Conference on Hurricanes and Tropical Meteorology Virtual Meeting, 10-12 May 2021 Virtual Meeting
- [30] Worthen, D., Vertenstein, M., Dunlap, R., **Turuncoglu, U.**, Wang, J., Li, B., Meixner, J., Chawla, A., 2020. The CMEPS Mediator in the UFS-S2S Model, Unified Forecast system (UFS) User's Workshop, Jul 27-29, 2020. Virtual Workshop.
- [29] Dunlap, R., Koziol, B., Li, P., Liu, F., Montuoro, R., Oehmke, B., O'Kuinghttons, R., Pillai, H., Rosen, D., Theurich, G., **Turuncoglu, U.**, 2020. Coupled Modeling Infrastructure for the Unified Forecast System, Unified Forecast system (UFS) User's Workshop, Jul 27-29, 2020. Virtual Workshop.
- [28] Batibeniz, F., Onol, B., **Turuncoglu, U.U.**, Coupled long-term wave simulations based on Regional Earth System Model over the Mediterranean sea, ICRC-CORDEX 2019 International Conference on Regional Climate, Oct. 14-18, 2019, Benjing, China (oral, abstract).
- [27] Ozcan, C., Onol, B. and **Turuncoglu, U.U.**, 2018. Wind-driven sensitivity analysis of Aegean Sea coastal upwelling system using Regional Earth System Model (RegESM), MedCLIVAR 2018, Sept. 17-21, 2018, Belgrade, Serbia (poster, abstract)
- [26] **Turuncoglu, U.U.** and Mahendra Roppa, 2018. A New Modeling Framework for In-Situ Visualization Integrated in Earth System Models, GTC2018 GPU Technology Conference, March 26-29, 2018, San Jose, CA, USA (oral, abstract)
- [25] Batibeniz, F., Ashfaq, M., **Turuncoglu, U.U.**, Onol, B., 2017. Characterizing moisture sources over Mediterranean Basin in a Regional Earth System Model, AGU Fall Meeting, 11-15 Dec. 2017, New Orleans, USA (poster, abstract)
- [24] Doğan, O.H., Onol, B., **Turuncoglu, U.U.**, 2017. The sensitivity of WRF-ARW Parametrizations and Initialization on Heavy Precipitation Prediction: Hope-Artvin Case, August 2015. 8<sup>th</sup> Atmospheric Sciences Symposium – ATMOS2017, 1-4 Nov. 2017, Istanbul, Turkey (oral, abstract).
- [23] Onol, B., and **Turuncoglu, U.U.**, 2016. Extreme summer precipitation increase in the Med-CORDEX simulations: Analysis of the evaluation period, The International Conference on Regional Climate (ICRC)-CORDEX 2016, 17-20 May. 2016, Stockholm, Sweden (poster, abstract)
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- [19] Yilmaz, Y., Sen, O.L., **Turuncoglu, U.U.**, 2016. Hydro-climatic Effects of Present and Future Land Cover / Land Use Changes in the Upper Mesopotamia, European Geosciences Union, Geophysical Research Abstracts, Vol. 18, EGU2016-9765-3 (poster, abstract)
- [18] Mariotti, L., **Turuncoglu U.U.**, Farneti, R., Sannino, G., Pisacane, G., Struglia, M., Carillo, A., Dell'Aquila, A., Calmanti, S., Sitz, L., Fuentes, R.F., Sante, F.D., 2015. The Regional Earth System Model (RegESM) using RegCM4 coupled with the MITgcm ocean model: First assessments over the MED-CORDEX domain. HyMex-Baltic Earth Workshop, Joint regional climate system modelling for the European sea regions, 5-6 Nov. 2015., Rome, Italy (poster, abstract)
- [17] Onol, B. and **Turuncoglu, U.U.**, 2015. Declining Trend in Simulated Snow Water Equivalent over the Highlands of Turkey, 26th IUGG 2015 General Assembly, 22 June-2-July 2015, Prague, Czech Republic. (poster, abstract)
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Mediterranean Sea using coupled climate model (RegESM), European Geosciences Union, Geophysical Research Abstracts, Vol. 17, EGU2015-3644 (poster, abstract)

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[13] **Turuncoglu U.U.**, 2015. Development and Validation of a Regional Earth System Model (RegESM) for the Mediterranean Region. 5th International Conference on Meteorology and Climatology of the Med, Istanbul, Turkey (oral, abstract)

[12] Yılmaz Y., **Turuncoglu U.U.**, Sen O.L., 2015. Performance Evaluation of CMIP5 Simulations for Turkey and Neighbouring Region, 5th International Conference on Meteorology and Climatology of the Med, Istanbul, Turkey (oral, abstract)

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[9] **Filippo, G. and CREMA Team, 2013.** The Phase I CORDEX RRegCM hyper-Matrix (CREMA) experiment. European Geosciences Union, Geophysical Research Abstracts, Vol. 15, EGU2013-3317 (oral, abstract)

[8] Elguindi, N., **Turuncoglu U. U.**, Filippo, G., 2013. Assessment of CMIP5 global model simulations over the sub-set of CORDEX domains used in the Phase I CREMA. European Geosciences Union, Geophysical Research Abstracts, Vol. 15, EGU2013-3121 (poster, abstract)

[7] **Turuncoglu U. U.**, Dalfes N., Murphy S., DeLuca C., 2010. A coupled and workflow integrated modeling system applications for earth system science. European Geosciences Union, Geophysical Research Abstracts, Vol. 12, EGU2010-9999-1 (oral, abstract)

[6] **Deniz B., Sen O. L., Turuncoglu U. U., Onol B., Kindap T., Dalfes H. N., Karaca M., 2010.** Impacts of climate change on hydrometeorology of the Euphrates and Tigris Basins. European Geosciences Union, Geophysical Research Abstracts, Vol. 12, EGU2010-14278 (poster, abstract)

[5] **Turuncoglu, U. U., Murphy S., DeLuca C., 2009.** Towards CCSM self-describing workflows, 14<sup>th</sup> CCSM Workshop, Boulder, CO (oral, poster)

[4] **Turuncoglu, U. U., Dalfes H. N., 2008.** Building a workflow management environment for earth system sciences: preliminary results. European Geosciences Union, Geophysical Research Abstracts, Vol. 10, EGU2008-A-07279 (oral, abstract)

[3] **Bozkurt, D., Sen, O. L., Turuncoglu, U. U., Karaca M., Dalfes H. N., 2008.** Regional climate change projections for Eastern Mediterranean. European Geosciences Union, Geophysical Research Abstracts, Vol. 10, EGU2008-A-04264 (poster, abstract)

[2] **Dalfes H. N., Turuncoglu, U. U., Uney E., Sen, O. L., Karaca M., 2007.** Dynamically downscaled climate projections for Turkey: preliminary results. Second International Conference on Earth System Modelling (ICESM) 2007, ICESM Abstracts Vol. 1., ICESM2007-A-00212 (poster, abstract)

[1] **Turuncoglu, U. U., Dalfes H. N., 2007.** A three dimensional circulation model for Lake Van. European Geosciences Union, Geophysical Research Abstracts, Vol. 9, EGU2007-A-07568 (oral, abstract)

## **g) Publications in National (Turkey) Conferences (5)**

[5] **Turuncoglu, U.U.**, Onol, B., 2017. Analysis of results of regional earth system model using in situ visualization approach. 5. Ulusal Yüksek Başarımlı Hesaplama Konferansı (BASARIM 2017).

[4] **Turuncoglu, U. U., Dalfes H. N., 2008.** Three Dimensional Circulation Model for Lake Van. Van Gölü Hidrolojisi ve Kirliliği Konferansı, Bildiriler Kitabı, Page, 1-11, Van (oral, paper)



[3] **Turuncoglu, U. U., Önal, B., Bozkurt, D., 2007.** Regional climate change projections with dynamic models. Küresel İklim Değişimi ve Su Sorunlarının Çözümünde Ormanlar Sempozyumu, Bildiriler Kitabı, İstanbul (oral, paper)

[2] **Kindap, T., Göktürk, O. M., Sancar, T., Karaca, M., Turunçoğlu, U. U., Tayanç, M., 2006.** Threat of Metsamor Nuclear Power Plant to GAP Region. GAP 5. Engineering Congress, 26-28 April 2006 (oral)

[1] **Turuncoglu, U. U., Şen, Z. 1999.** Precipitation Areal Weighted Average Method, 10th Engineering Symposium, Civil Engineering '99, 2-3 June 1999, Isparta (oral, paper)

## PROJECTS

### Ongoing

- **NA21OAR4590167:** NOAA JTTI (Joint Technology Transfer Initiative), 08/01/2021- 07/31/2024. **Advancing Land Modeling Infrastructure in the UFS for Hierarchical Model Development. (PI, Technical Lead)**
- **NOAA EPIC SoW:** 12/15/2022- 03/31/2024. **Advancing UFS Infrastructure in Support of Coastal Coupling and Fire Modeling. (Technical Lead)**

### Completed

- **116Y136:** TUBITAK, 01/2017-01/2019. **Integration of in-situ visualization approach with coupled atmosphere-ocean modeling system to study fast- moving physical processes in atmosphere-sea interaction. (PI)**
- **114Y114:** Prof. Dr. Ömer Lütfi Şen, TUBITAK 1001 Projesi, 2015-2017. **Fırat & Dicle Havzasında İnsan Kaynaklı İklim Değişiklikleri. (Research Scientist)**
- **AnaEE:** PI: Dr. Nüzhet Dalfes, EU-FP7, 11/2012-10/2016. **Infrastructure for Analysis and Experimentation on Ecosystems, (Research Scientist)**
- **113Y108:** TUBITAK, 09/2013-09/2015. **Investigation of the effects of Mediterranean and Black Sea on the regional climate system of Turkey using fully coupled atmosphere-ocean model. (PI)**
- **SHELL Caspian Sea Project:** PI: Prof. Dr. Filippo GIORGI, 2011-2012. **Predicting future Caspian Sea Level (CSL). (Research Scientist)**
- **MDG-F-1680-ITU:** PI: Prof. Dr. Nüzhet DALFES, UN-UNDP Project, 2008-2010. **Enhancing The Capacity of Turkey to Adapt to Climate Change. (Research Scientist)**
- **108Y064:** PI: Dr. Tayfun KINDAP, TUBITAK, 2008-2011. **Impact of European Emissions on Air Quality in Turkey: Development Modeling Framework (Meteorology, Emissions, and Air Quality Models) and Climatologically Evaluation (Consultant)**
- **106G029:** PI: Prof. Dr. Muhammed ŞAHİN, TÜBİTAK, 2006-2008. **Installation of Disaster Management and Meteorological Early Warning System in Rize Province (RABIS). (Research Scientist)**
- **105Y046:** PI: Dr. Tayfun KINDAP, TUBITAK, 2005-2007. **Potential Accident Threat to Turkey from Surrounding Nuclear Power Plants: Tracer and Trajectory Analysis and Episode Studies. (Research Scientist)**
- **105G015:** PI: Prof. Dr. Nüzhet DALFES, TUBITAK, 2006-2008. **Developing Climate Scenarios for Turkey. (Research Scientist)**

## INVITED TALKS

[1] **Turuncoglu, U.U.** and Mahendra Roppa, 2018. A New Modeling Framework for In-Situ Visualization Integrated in Earth System Models, GTC2018 GPU Technology Conference, March 26-29, 2018, San Jose, CA, USA.

[2] **Turuncoglu, U.U.** 2017., Integrating existing in-situ data analysis and visualization approach with a model coupling framework (ESMF), The Forth Workshop on Coupling Technologies for Earth System Models, 20-22 March. 2017, Priinceton, US.

[3] **Turuncoglu, U.U.** 2015., Regional Earth System Model (RegESM) using NUOPC/ESMF, The Third Workshop on Coupling Technologies for Earth System Models, 20-22 Apr. 2015, Manchester, U.K.

[4] **Turuncoglu, U. U, 2016.** Recent developments in RegESM modeling system and plans to support higher resolution and multi-component applications. 8th ICTP Workshop on The Theory and Use of REGional Climate Models, 23 May-3 Jun, 2016, Trieste Italy.

[5] **Turuncoglu, U. U, 2014.** Overview of Model Coupling in Earth System Sciences and Recent Developments + Lab-Session: Introduction to Earth System Modeling Framework (ESMF): An Atmosphere-Ocean Modeling Application Example, School on Parallel Programming and Parallel Architecture for HPC and Developer School for HPC applications in Earth Sciences + Symposium on HPC and Data-Intensive Applications in Earth Sciences | (smr 2613), 27 Oct. – 14 Nov. 2014

[6] **Turuncoglu, U. U, 2014.** Identifying the sensitivity of precipitation of Anatolian Peninsula to Mediterranean Sea Surface Temperature using coupled regional climate model. Laboratory instructor of RegESM model. 7th ICTP Workshop on The Theory and Use of REGional Climate Models, May 12-23, 2014, Trieste Italy.

[7] **Turuncoglu, U. U, 2012.** Coupling RegCM with the ocean model ROMS. 6th ICTP Workshop on The Theory and Use of REGional Climate Models, May 7-18, 2012, Trieste Italy.

[8] **Turuncoglu, U. U, 2011 and 2014.** Towards self-describing, standardized and workflow integrated Earth system models. Max Planck Institute for Meteorology (MPI-M) & German Climate Computing Centre (DKRZ). Hamburg, Germany

## **REVIEWER ASSIGNMENTS(selected)**

### **International**

- **Geoscientific Model Development, Copernicus Publication**
- **Computers and Electrical Engineering, Elsevier (ISSN: 0045-7906)**
- **Environmental Modelling & Software, Elsevier (ISSN: 1364-8152)**
- **Journal of Geophysical Research: Oceans, Wiley (ISSN: 2169-9291)**
- **Regional Environmental Change, Springer (ISSN: 1436-3798)**
- **Global and Planetary Change, Elsevier (ISSN: 0921-8181)**

### **AWARDS**

- NVIDIA Academic Research Grant (GPU Donation, NVIDIA K5200)
- Abdus Salam International Center for Theoretical Physics (ICTP) Regular Associate – 1 Jan 2014 / 31 Dec 2019

### **MEMBERSHIPS**

- ACM (Association for Computing Machinery) - Oct. 2019-2023
- AMS (American Meteorological Society) – Mar. 2024-ongoing