Δρ. Εμμανουήλ Γ. Γρυλλάκης ΒΙΟΓΡΑΦΙΚΟ ΣΗΜΕΙΩΜΑ

Όνομα:	**Εμμανουήλ Γ. Γρυλλάκης**
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Ειδικότητα:	Διαχείριση υδατικών πόρων, Εδαφική υγρασία, Υδρολογία, Υδραυλική ποταμών, Κλιματική αλλαγή, Διόρθωση σφάλματος πόλωσης σε κλιματικά δεδομένα, Υδρολογικά και υδραυλικά μοντέλα, Μοντέλα προσομοίωσης της επιφάνειας της γης (LSMs).
Απασχόληση:	**Πολυτεχνείο Κρήτης – Σχολή Μηχανικών Περιβάλλοντος – ερευνητικός συνεργάτης, διδάσκων**

Εκπαίδευση

Σεπ 2008 - Σεπ 2014	Σχολή Μηχανικών Περιβάλλοντος, Πολυτεχνείο Κρήτης
Ph.D. (2014)	Doctor of Philosophy - Τίτλος διατριβής: "Μελέτη επιπτώσεων κλιματικής μεταβολής σε βασικές υδρολογικές παραμέτρους και ο ρόλος του μεροληπτικού σφάλματος". Ειδίκευση στην **Διαχείριση υδατικών πόρων, υδρολογία και κλιματική αλλαγή.**
Σεπ. 2006- Σεπ. 2007	Σχολή Μηχανικών Περιβάλλοντος, Πολυτεχνείο Κρήτης
M.A.Sc. (2007)	Master of Applied Science - Τίτλος μεταπτυχιακής Διατριβής: «Χρήση τηλεπισκόπησης και ανάπτυξη αλγορίθμων για υδρολογικούς σκοπούς » Ειδίκευση στην **Τηλεπισκόπηση για υδρολογικές εφαρμογές.**
Σεπ. 2001- Αυγ. 2006	Σχολή Μηχανικών Περιβάλλοντος, Πολυτεχνείο Κρήτης
Δίπλωμα (2006)	Δίπλωμα Μηχανικού Περιβάλλοντος (Άριστα 8.52 / 10) – Τίτλος διπλωματικής διατριβής «Μελέτη και προσομοίωση της επιφανειακής απορροής της υδρολογικής λεκάνης του ποταμού Κερίτη, με χρήση δεδομένων πεδίου». Ειδίκευση στην **Υδρολογική προσομοίωση.**
Ξένες Γλώσσες:	Αγγλικά (C2 – CPE, Michigan University)

Scopus h-index: 23, 51 documents, 1388 citations in 1153 documents

Scholar h-index 26, 2078 citations, i10-index: 42

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Ακαδημαϊκές Διακρίσεις

- Περίληψη στη λίστα των παγκοσμίως 2% κορυφαίων επιστημόνων για το 2020. Δεύτερος στο Ίδρυμα Τεχνολογίας και Έρευνας (doi: 10.17632/btchxktzyw.3).
- Βραβείο επίδοσης στις προπτυχιακές σπουδές Εμμ. Μιχαηλάκη. Υψηλότερη βαθμολογία κατά το 3ο και 4ο έτος σπουδών, 2003-2004 και 2004-2005.
- Βραβείο αριστείας στις προπτυχιακές σπουδές. Ιδρύματος Κρατικών Υποτροφιών (ΙΚΥ). Υψηλότερη βαθμολογία κατά το 3ο και 4ο έτος σπουδών, 2003-2004 και 2004-2005.
- Βραβείο εισαγωγής στο ΜΔΕ Περιβαλλοντική και Υγειονομική Μηχανική (1ος εισακτέος) 2006-2007.
- Βραβείο επίδοσης στο 1ο εξάμηνο του ΜΔΕ Περιβαλλοντική και Υγειονομική Μηχανικής 2006-2007.

Διδακτική Εμπειρία

Ιαν 2022 – Ιουν 2022	Διδάσκων του μαθήματος «Υδραυλική Ι» (Υδραυλική ανοικτών αγωγών) Πολυτεχνείο Κρήτης – Σχολή Μηχανικών Περιβάλλοντος
Σεπτ 2021 – Ιαν 2022	Διδάσκων του μαθήματος «Παράκτια Μηχανική» Πολυτεχνείο Κρήτης – Σχολή Μηχανικών Περιβάλλοντος
Ιαν 2021 – Ιουν 2021	Διδάσκων του μαθήματος «Υδραυλική Ι» (Υδραυλική ανοικτών αγωγών) Πολυτεχνείο Κρήτης – Σχολή Μηχανικών Περιβάλλοντος
Σεπτ 2020 – Ιαν 2021	Διδάσκων του μαθήματος «Παράκτια Μηχανική» Πολυτεχνείο Κρήτης – Σχολή Μηχανικών Περιβάλλοντος
Ιαν 2020 – Ιουν 2020	Διδάσκων του μαθήματος «Υδραυλική Ι» (υδραυλική ανοικτών αγωγών) Πολυτεχνείο Κρήτης – Σχολή Μηχανικών Περιβάλλοντος
Σεπτ 2019 – Ιαν 2020	Διδάσκων του μαθήματος «Παράκτια Μηχανική» Πολυτεχνείο Κρήτης – Σχολή Μηχανικών Περιβάλλοντος
Ιαν 2019 – Ιουν 2019	Διδάσκων του μαθήματος «Υδραυλική Ι» (υδραυλική ανοικτών αγωγών) Πολυτεχνείο Κρήτης – Σχολή Μηχανικών Περιβάλλοντος
Σεπτ 2017 – Φεβ 2018	Διδάσκων του μαθήματος «Διαχείριση Περιβάλλοντος» στο Τεχνολογικό Εκπαιδευτικό Ίδρυμα Κρήτης (νυν ΕΛΜΕΠΑ) – Τμήμα Μηχανολόγων Μηχανικών.
Ιούλ 2007 – Σεπτ 2016	Βοηθός διδασκαλίας θεωρίας και ασκήσεων – Συγγραφή σημειώσεων – Επίβλεψη φοιτητών σε εργασίες, στο Πολυτεχνείο Κρήτης στα μαθήματα

- Αριθμητικές μέθοδοι στην περιβαλλοντική μηχανική (1 ακαδημαϊκό εξάμηνο)
- Παράκτια Μηχανική (1 ακαδημαϊκό εξάμηνο)
- Υδραυλική Ανοικτών Αγωγών (2 ακαδημαϊκά εξάμηνα)
- Περιβαλλοντική υδραυλική (4 ακαδημαϊκά εξάμηνα)
- Υδραυλικά έργα (4 ακαδημαϊκά εξάμηνα)

Συμμετοχή σε ερευνητικά προγράμματα

1. **Leverhulme Centre for Wildfires, Environment and Society:** Ερευνητής πάνω στις υδρολογικές επιπτώσεις των πυρκαγιών (2022).
2. **STREAM**: SusTainable REservoir mAnagement in water-stressed Mediterranean areas. Funded by Prince Albert II of Monaco foundation (2021-2022).
3. **DETACC**: DEtection and aTtribution of agricultural droughts to Anthropogenic Climate Change. Μεταδιδακτορική έρευνα που συγχρηματοδοτήθηκε από την Ελλάδα και την Ευρωπαϊκή Ένωση (Ευρωπαϊκό Κοινωνικό Ταμείο) μέσω του Επιχειρησιακού Προγράμματος «Ανάπτυξη Ανθρώπινου Δυναμικού, Εκπαίδευση και Διά Βίου Μάθηση», στο πλαίσιο της Πράξης «ΕΝΙΣΧΥΣΗ ΜΕΤΑΔΙΔΑΚΤΟΡΩΝ ΕΡΕΥΝΗΤΩΝ/ΕΡΕΥΝΗΤΡΙΩΝ - Β κύκλος» (MIS 5033021) που υλοποιεί το Ίδρυμα Κρατικών Υποτροφιών (ΙΚΥ) (2019-2021).
4. **CLIMPACT -** Εθνικό Δίκτυο για την Κλιματική Αλλαγή, Υποέργο 3 του έργου "Υποδομές Εθνικών Ερευνητικών Δικτύων στους τομείς της Ιατρικής Ακριβείας, των Κβαντικών Τεχνολογιών και της Κλιματικής Αλλαγής" με κωδ. αριθ. 2018ΣΕ01300001 του Εθνικού Σκέλους του ΠΔΕ της ΓΓΕΤ (2021).
5. **COST Action, CA19139** - Process-based models for climate impact attribution across sectors – PROCLIAS (2020 - Action Management Committee member)
6. **Agro4Crete**: Δράση για την έρευνα στον αγροδιατροφικό τομέα της Κρήτης. Υποέργο 2, ΠΑΡΕΜΒΑΣΗ Β " Εμβληματική Ερευνητική Δράσης Εθνικής εμβέλειας για την αξιοποίηση νέων τεχνολογιών στον τομέα της Αγροδιατροφής". Χρηματοδοτικό πλαίσιο: Εθνικό σκέλος του ΠΔΕ της ΓΓΕΤ. (2020 – 2021)

7. **5DARE**: Development of an integrated 5-dimensional space-based methodology for Assessing and modelling the Response of Erosion dynamics to land use and climatic changes in Mediterranean watersheds, Greek Institute for Research and Innovation (Hellenic Foundation for Research and Innovation) (2019-2021)
8. **H2020 IMPREX**: IMproving PRedictions and management of hydrological Extremes. (H2020-WATER-2014)
9. **HELIX FP7**: High-End cLimate Impacts and eXtremes. ENV.2013.6.1-3 Impacts of higher-end scenarios (global average warming > 2 °C with respect to pre-industrial level) – FP7-ENV-2013
10. **CASCADE FP7**: CAtastrophic Shifts in drylands: how CAn we prevent ecosystem DEgradation? Collaborative Project/ Large Scale Integrated Project FP7-ENV-2011
11. **IMPACT2C FP7**: Quantifying projected impacts under 2°C warming. Collaborative project/Large-scale integrating project, FP7-ENV-2011
12. **ECLISE FP7**: Enabling CLimate Information Services for Europe - Programme "Environment" FP7-ENV-2010.1.1.4-1. Underpinning work to enable provision of local scale climate information
13. **SATFLOOD**: Integrated Use of Satellite Remote Sensing and Hydraulic Modelling for the Flood Risk Assessment at Catchment Scale in Cyprus, Institute for Research Advancement, Nicosia, Cyprus
14. **COMBINE FP7**: Comprehensive Modelling of the Earth System for better climate prediction and projection (Integrated Project), FP7-ENV-2008-1
15. **SIMFLOOD**: High Resolution Satellite Imagery for Floodplain Mapping, European Space Agency (ESA)
16. **WATCH**: WATer & global CHange (Integrated Project), Sixth Framework Programme – Global Change and Ecosystems Priority – 4th Call Paragraph II.1.1 Global Water Cycle, Water Resources and Droughts
17. **SCENES**: Water Scenarios for Europe and for Neighboring States (Integrated Project), Sub-Priority 6.3 – Global Change and Ecosystems, Sub-priority research area - II.4 Scenarios of water demand and availability, Topic - II.4.1 Water scenarios for Europe and for neighboring countries
18. **HYDRATE**: Hydrometeorological data resources and technologies for effective flash flood forecasting Sixth Framework Programme – Global Change and Ecosystems Priority – 4th Call Paragraph II.1.2 "Flash Flood forecasting

Προσφορά προς την Επιστημονική Κοινότητα

1. Κύριος συγγραφέας στην Ειδική Έκθεση Εμπειρογνωμόνων για την αλλαγή του κλίματος και το περιβάλλον στη Μεσόγειο (MedECC) - Chapter 3 (3.3 Society). Συμβάλλων συγγραφέας στο Κεφ 3.1 – Soil moisture).
2. Αξιολογητής στο Πανεπιστήμιο Wisconsin-Milwaukee το 2016 στην πρωτοβουλία για την ανάπτυξη της έρευνας (Research Growth Initiative)
3. Ειδικός Κριτής στην Ειδική Έκθεση της IPCC για την παγκόσμια αύξηση της θερμοκρασίας κατά 1.5ºC (IPCC Special Report on Global Warming of 1.5°C).
4. Κριτής στην Ειδική Έκθεση της IPCC για τη κλιματική αλλαγή και τη γη (IPCC Special Report on Climate Change and Land).
5. Αξιολογητής σε διεθνή περιοδικά: Nature Scientific Reports, Frontiers, Climatic Change, Journal of Hydrology, Solar Energy, Climate Services Journal, Natural Hazards and Earth System Sciences, Hydrology and Earth System Sciences, Natural Hazards journal, International Journal of Climatology, Soil Science, Entropy MDPI, Water MDPI, Stochastic Environmental Research and Risk Assessment,.

Συμμετοχές σε επαγγελματικούς και ακαδημαϊκούς οργανισμούς

1. **ISIMIP**: Inter-Sectoral Impact Model Intercomparison Project – Active member and active data contributor to water sector with the Joint UK Land Environment Simulator (JULES-W1) και CaMa-Flood global hydrodynamic simulation model (2016-Σήμερα)
2. **IAHS**: INTERNATIONAL ASSOCIATION OF HYDROLOGICAL SCIENCES (2018- Σήμερα)
3. Τεχνικό Επιμελητήριο Ελλάδος, (2006- Σήμερα)

Συμμετοχή σε συντακτικές επιτροπές και συνέδρια

- Συν-οργανωτής (co-convener) θέματος στο συνέδριο, 1st International Congress on Fire in the Earth System: Humans and Nature, November 3-7, 2021: Session: Fire Behavior Modelling and Simulations
- 2018-2020 Guest editor στο επιστημονικό περιοδικό *Resources MDPI*. Τίτλος του ειδικού θέματος: "*Υδατικοί πόροι και κλιματική αλλαγή*".

Συμμετοχή σε επιστημονικές συναντήσεις - Ομιλίες

1. **Ιούνιος 2019 – Παρίσι**, «Cross-sectoral ISIMIP workshop of the Inter-Sectoral Impact Model Intercomparison Project». Ομιλία πάνω στις παγκόσμιες τάσεις στην εδαφική υγρασία από παγκόσμια υδρολογικά μοντέλα.
2. **Απρίλιος 2019 – Μονπελιέ**, Συνάντηση εργασίας του MISTRALS πάνω στις ξηρασίες της μεσογείου – Κοινή συνάντηση των πρωτοβουλιών HYMEX, SICMED, BIODIVMEX και IMPACTCC. Παρουσίαση αποτελεσμάτων της εργασίας «Increase in severe and extreme soil moisture droughts for Europe under climate change – Grillakis, 2019».
3. **Μάρτιος 2019 - Μιλάνο,** Πρώτη συνάντηση Συγγραφέων στην Ειδική Έκθεση Εμπειρογνωμόνων για την αλλαγή του κλίματος και το περιβάλλον στη Μεσόγειο (MedECC) - Κεφάλαιο 3- Προκλήσεις.
4. **Αύγουστος 2018 - Φρανκφούρτη**, Goethe-Institut: Συνάντηση εργασίας για το Inter-Sectoral Impact Model Intercomparison Project. Ομιλία για την προσομοίωση της εδαφικής υγρασίας στα παγκόσμια υδρολογικά μοντέλα και μοντέλα επιφάνειας της γης.
5. **Μάρτιος 2018 - Ισπανία**, Technical University of Cartagena: Συνάντηση εργασίας στα πλαίσια του ευρωπαϊκού ερευνητικού προγράμματος IMPREX H2020. Ομιλία πάνω στη εφαρμογή της μεθοδολογίας WATERACCOUNTING + στην περιοχή της Μεσσαράς - Κρήτη.
6. **Μάρτιος 2018 – Χανιά,** COST Action: ES1306, Τίτλος συνάντησης: The Hydrological and Erosional Cycles in Karstic Terrains.
7. **Απρίλιος 2016 – Βιέννη**. European Geoscience Union, General Assembly. Εκπροσώπηση του Εργαστηρίου Διαχείρισης Υδατικών Πόρων και Παράκτιας Μηχανικής. Παρουσίαση επτά posters.
8. **Οκτώβριος 2014 – Κοπεγχάγη**, Danish Meteorological Institute (DMI). Γενική συνέλευση ευρωπαϊκού ερευνητικού προγράμματος IMPACT2C.
9. **Μάιος 2014 – Βιέννη**. European Geoscience Union, General Assembly. Εκπροσώπηση του Εργαστηρίου Διαχείρισης Υδατικών Πόρων και Παράκτιας Μηχανικής. Παρουσίαση επτά posters.

Δημοσιεύσεις σε διεθνή περιοδικά με κριτές

A_51. **Grillakis, M. G.,** Doupis, G., Kapetanakis, E., & Goumenaki, E. (2022). Future shifts in the phenology of table grapes on crete under a warming climate. Agricultural and Forest Meteorology, 318, 108915.

A_50. **Grillakis, M.,** Voulgarakis, A., Rovithakis, A., Seiradakis, K. D., Koutroulis, A., Field, R. D., Kasoar, M., Papadopoulos, A., Lazaridis, M. (2022). Climate drivers of global wildfire burned area. Environmental Research Letters, 17(4), 045021.

A_49. Rovithakis, A., **Grillakis, M. G.,** Seiradakis, K. D., Giannakopoulos, C., Karali, A., Field, R., Lazaridis, M., Voulgarakis, A. (2022). Future climate change impact on wildfire danger over the Mediterranean: the case of Greece. Environmental Research Letters, 17(4), 045022.

A_48. Thiery BW, Lange S, Rogelj J, Schleussner C-F, Gudmundsson L, Seneviratne SI, Andrijevic M, Frieler K, Emanuel K, Geiger T, Bresch DN, Zhao F, Willner SN, Büchner M, Volkholz J, Bauer N, Chang J, Ciais P, Dury M, François L, **Grillakis M**, Gosling SN, Hanasaki N, Hickler T, Huber V, Ito A, Jägermeyr J, Khabarov N, Koutroulis A, Liu W, Lutz W, Mengel M, Müller C, Ostberg S, Reyer CPO, Stacke T, Wada Y. Intergenerational inequities in exposure to climate extremes. Science (80-) [Internet]. American Association for the Advancement of **Science,** 374(6564), 158-160. DOI: 10.1126/science.abi7339.

A_47. Satoh Y, Shiogama H, Hanasaki N, Pokhrel Y, Boulange JES, Burek P, Gosling SN, **Grillakis M**, Koutroulis A, Schmied HM, Thiery W, Yokohata T. A quantitative evaluation of the issue of drought definition: a source of disagreement in future drought assessments. **Environ Res Lett**. IOP Publishing; 2021. 2021 16(10), p.104001.

A_46. Polykretis C, **Grillakis MG**, Argyriou A V., Papadopoulos N, Alexakis DD. Integrating Multivariate (GeoDetector) and Bivariate (IV) Statistics for Hybrid Landslide Susceptibility Modeling: A Case of the Vicinity of Pinios Artificial Lake, Ilia, Greece. L 2021, Vol 10, Page 973 [Internet]. Multidisciplinary Digital Publishing Institute; 2021 Sep 15;10(9):973.

A_45. Christos Polykretis, Dimitrios D. Alexakis, **Manolis G. Grillakis**, Athos Agapiou, Branka Cuca, Nikos Papadopoulos & Apostolos Sarris (2021) Assessment of water-induced soil erosion as a threat to cultural heritage sites: the case of Chania prefecture, Crete Island, Greece, **Big Earth Data**, DOI: 10.1080/20964471.2021.1923231

A_44. Telteu, C.-E., Müller Schmied, H., Thiery, W., Leng, G., Burek, P., Liu, X., Boulange, J. E. S., Andersen, L. S., **Grillakis, M.,** Gosling, S. N., Satoh, Y., Rakovec, O., Stacke, T., Chang, J., Wanders, N., Shah, H. L., Trautmann, T., Mao, G., Hanasaki, N., Koutroulis, A., Pokhrel, Y., Samaniego, L., Wada, Y., Mishra, V., Liu, J., Döll, P., Zhao, F., Gädeke, A., Rabin, S. S., and Herz, F.: Understanding each other's models: an introduction and a standard representation of 16 global water models to support intercomparison, improvement, and communication, **Geosci. Model Dev**., 14, 3843–3878, https://doi.org/10.5194/gmd-14-3843-2021, 2021.

A_43. **Grillakis, M.G**., Koutroulis, A.G., Alexakis, D.D., Polykretis, C., Daliakopoulos, I.N., 2021. Regionalizing Root-Zone Soil Moisture Estimates From ESA CCI Soil Water Index Using Machine Learning and Information on Soil, Vegetation, and Climate. **Water Resour. Res**. 57, e2020WR029249. https://doi.org/10.1029/2020WR029249

A_42. Gudmundsson L., H. X. Do, Simon N. Gosling, **M. G. Grillakis**, A. G. Koutroulis, M. Leonard, J. Lui, H. M. Schmied, L. Papadimitriou, Y. Pokhrel, J. Schewe, S. I. Seneviratne, W. Thiery, S. Westra, X. Zhang, F. Zhao. (2021). Globally observed trends in mean and extreme river flow attributed to climate change. **Science** Vol. 371, 6534, pp. 1159-1162, doi:10.1126/science.aba3996.

A_41. Reinecke, R., Müller Schmied, H., Trautmann, T., Andersen, L. S., Burek, P., Flörke, M., Gosling, S. N., **Grillakis, M**., Hanasaki, N., Koutroulis, A., Pokhrel, Y., Thiery, W., Wada, Y., Yusuke, S., and Döll, P.: Uncertainty of simulated groundwater recharge at different global warming levels: a global-scale multi-model ensemble study, **Hydrol. Earth Syst. Sci**., 25, 787–810, https://doi.org/10.5194/hess-25-787-2021, 2021.

A_40. Pokhrel, Y., Felfelani, F., Satoh, Y., Boulange, J., Burek, P., Gädeke, A., Gerten, D., Gosling, S.N., **Grillakis, M**., Gudmundsson, L., Hanasaki, N., Kim, H., Koutroulis, A., Liu, J., Papadimitriou, L., Schewe, J., Müller Schmied, H., Stacke, T., Telteu, C.-E., Thiery, W., Veldkamp, T., Zhao, F., Wada, Y., 2021. Global terrestrial water storage and drought severity under climate change. **Nature Climate Change**. https://doi.org/10.1038/s41558-020-00972-w

A_39. Lange, S., Volkholz, J., Geiger, T., Zhao, F., Vega, I., Veldkamp, T., Reyer, C.P.O., Warszawski, L., Huber, V., Jägermeyr, J., Schewe, J., Bresch, D.N., Büchner, M., Chang, J., Ciais, P., Dury, M., Emanuel, K., Folberth, C., Gerten, D., Gosling, S.N., **Grillakis, M**., Hanasaki, N., Henrot, A., Hickler, T., Honda, Y., Ito, A., Khabarov, N., Koutroulis, A., Liu, W., Müller, C., Nishina, K., Ostberg, S., Müller Schmied, H., Seneviratne, S.I., Stacke, T., Steinkamp, J., Thiery, W., Wada, Y., Willner, S., Yang, H., Yoshikawa, M., Yue, C., Frieler, K., 2020. Projecting exposure to extreme climate impact events across six event categories and three spatial scales. **Earth's Futur**. https://doi.org/10.1029/2020EF001616

A_38. Gädeke, A., Krysanova, V., Aryal, A., Chang, J., **Grillakis, M**., Hanasaki, N., Koutroulis, A., Pokhrel, Y.,

Satoh, Y., Schaphoff, S., Schmied, H.M., Stacke, T., Tang, Q., Wada, Y., Thonicke, K., 2020. Performance evaluation of global hydrological models in six large Pan-Arctic watersheds. **Clim. Chang**. 2020 1–23. https://doi.org/10.1007/S10584-020-02892-2

A_37. Ruman, S., Tichavský, R., Šilhán, K., & **Grillakis**, M. G. (2020). Palaeoflood discharge estimation using dendrogeomorphic methods, rainfall-runoff and hydraulic modelling—a case study from southern Crete. **Natural Hazards**, 1–22. https://doi.org/10.1007/s11069-020-04373-2

A_36. **Grillakis, M.G**.; Polykretis, C.; Alexakis, D.D. Past and projected climate change impacts on rainfall erosivity: Advancing our knowledge for the eastern Mediterranean island of Crete. **CATENA**. 193, 2020, 104625. https://doi.org/10.1016/j.catena.2020.104625

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