Personalia

Name	**Ghada El Serafy *Associate Prof. Dr. Ir.***
E-mail	[redacted]
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Nationality	
Years with Deltares	December 2001 – Present
Position	Specialist
Department	Data Science and Water Quality (Marine and Coastal Systems)
Profession	Civil Engineer (**Specialist in mathematical modelling and data science**) in Coastal Engineering, Sedimentology and Environmental Ecology

Key Qualifications

Ghada El Serafy is an expert on data sciences in ecosystem monitoring and modelling as well as ecosystem service assessment. She is actively involved in the strategic research and developments within Deltares as a member out of eight of its Science Council and is appointed as associate professor in data assimilation and optimization in the Technical University of Delft. She has a broad experience in uncertainty analysis, sensitivity analysis and data assimilation related to marine and coastal environmental quality and ecosystem health as well as integrated monitoring and assessment methods. Her experience also includes environmental impact assessments on national and regional level as well as trend and change detections on multiple spatial and temporal scales.

She supervises several doctoral degrees and Master of Science students. She leads several national and international projects with data science applications enhancing information services in different fields focusing on the coastal zone including but not limited to water quality, ecology and biodiversity. She is also leading several national, European and international projects within Deltares and coordinating others dealing with data science, Earth Observation, ecosystem modelling, digital twinning and information services, and ecosystem services (among many others CLEANSEA, ECOPOTENTIAL, GREEN, HISEA, E-SHAPE, FORCOAST, UNITED, ULTFARMS, OBAMA-NEXT, EDITO, and FOCCUS). She has extensive experience in project integration and ensuring cross-cutting within multi-layered and large projects. She is actively in leading role in various international initiatives: EuroGOOS, GEO initiatives, UN ocean decade collaborative centres and offices including its projects and programs.

Education

1994 - 2000	Ph.D - University of Technology in Delft, Faculty of Applied Mathematics - "Data Assimilation in particle models for groundwater contamination"
1993 - 1994	MSc. - International Institute for Infrastructural, Hydraulic and Environmental Engineering, Delft, The Netherlands - Master of Science, Title of thesis: "Two Dimensional Vertical Modelling of Salt Intrusion in Partially Mixed Estuaries". (Masters awarded with distinction)
1992 - 1993	MSc. - International Institute for Infrastructural, Hydraulic and Environmental Engineering (Delft) - Post-graduate Diploma in Hydroinformatics (Awarded with Distinction)
1990 - 1991	3-Credit Course, “Risk Analysis in Water Resources.
1985 - 1990	BSc. - Ain Shams University, Cairo, Egypt. - Civil Engineering. Project Title: "Design of Suez

Harbour" (Graduated with general grade "Distinction" and Project grade "Distinction")

Latest 5 years Journal Publications

Professional Associations

Co-Chair of the Executive Advisory Board of the EuroGOOS
Director of GEO AquaWatch EO for Water Quality
Advisory Board member of the UN Decade program CoastPredict
International Advisory Board member of the UN Decade Coastal Resilience DCC
North and East Atlantic focal point for the UN ocean prediction DCC
Delegate representative of the Copernicus Marine Forum
Chair of the Coastal Working Group of EuroGOOS
Chair of the ecosystem functions group in GEOBON
Co-Founder of the GEO ECO group
Member of the EuroGEOSS Ecosystem and Biodiversity Action Group

Countries of Work Experience

Egypt, Netherlands, European Union

Languages

	Writing	Speaking	Reading
Arabic	Mother tongue	Mother tongue	Mother tongue
English	Fluent	Fluent	Fluent
Dutch	Excellent	Excellent	Excellent
Spanish	Good	Excellent	Excellent
French	Good	Fair	Good

Employment Record

2001 – present **Deltares, Delft, The Netherlands**
Sr. Specialist - Data Sciences and Mathematical Modelling

1999 – 2001 **Royal Dutch Meteorological Institute, KNMI**
Postdoctoral researcher in data assimilation of Satellite Ozone profiles in transport models

1994 – 1999 **TNO, NITG, Delft, The Netherlands**
Research Assistant in data assimilation of groundwater contamination

1993 – 1994 **International Institute for Infrastructural, Hydraulic and Environmental Engineering, Delft, The Netherlands**
Teaching Assistant of Hydroinformatics

1991 – 1993 **Helwan University, Cairo, Egypt**
Lecturer on Hydraulics and marine ecosystems

1990 – 1992 **Nile Research Institute**
Researcher in Environmental engineering and Water Quality
Technical Assistant of the Canadian Team Leader of River Nile Protection and Development Project,

2023 Spinosa, A., Fuentes-Monjaraz, M. A., El Serafy, G., Assessing the Use of Sentinel-2 Data for Spatio-Temporal Upscaling of Flux Tower Gross Primary Productivity Measurements, Remote Sensing https://doi.org/10.3390/rs15030562

2023 El Serafy G., Mészáros L; Vicente Fernandez; … , EuroGOOS roadmap for operational coastal downstream services, Frontiers in Marine Science, doi: https://doi.org/10.3389/fmars.2023.1177615

2022 Mészáros L; Frank van der Meulen; Geurt Jongbloed; Ghada El Serafy, Coastal environmental and atmospheric data reduction in the Southern North Sea supporting ecological impact studies, Frontiers in Marine Science, doi: https://doi.org/1/10.3389/fmars.2022.920616

2021 Mészáros L; Frank van der Meulen; Geurt Jongbloed; Ghada El Serafy, Climate change induced trends and uncertainties in phytoplankton spring bloom dynamics, Frontiers in Marine Science, doi: https://doi.org/10.3389/fmars.2021.669951

2021 El Serafy[1,2], Dimitris Poursanidis[3], Pablo F. Méndez[4], Antonello Provenzale[5], A Bird's View of Monitoring and Management of Marine and Coastal Protected Areas, AGU publication a chapter in a book (accepted for publication)

2020 *Mészáros L*; Frank van der Meulen; Geurt Jongbloed; Ghada El Serafy, A Bayesian stochastic generator to complement existing climate change scenarios, Stochastic Environmental Research and Risk Assessment, doi: 10.1007/s00477-020-01935-5

2020 Ziemba A, *Mészáros L*, El Serafy G, El Rahi J, Integration Of Copernicus Satellite And Large Scale Model Data Into Localized High Resolution Sea & Coastal Modelling, H2O Watter Matters, https://www.h2owaternetwerk.nl/water-matters/water-matters-juni-2020

2020 Achutha Shettigar N, Bhattacharya B, *Mészáros L*, Spinosa A, El Serafy G, 3D ensemble simulation of seawater temperature – an application to aquaculture operations, Frontiers in Marine Science (https://doi.org/10.3389/fmars.2020.592147)

2020 Capet A, Fernandez V, She J, Dabrowski T, Umgiesser G, Staneva J, El Serafy G, *Mészáros L*, Campuzano F, Operational modelling capacity in EuropeanSeas - An EuroGOOS perspective andrecommendations for improvement, Frontiers in Marine Science, doi: https://doi.org/10.3389/fmars.2020.00129

2019 Höfer S., Ziemba A., El Serafy G.. A Bayesian Approach to Ecosystem Service Trade-Off Analysis Utilizing Expert Knowledge, Environment Systems and Decisions, 2019. 10.1007/s10669-019-09742-2

2019 Tintoré J, Pinardi N, Álvarez-Fanjul E, Aguiar E, Álvarez-Berastegui D, Bajo M, Balbin R, Bozzano R, Nardelli BB, Cardin V, Casas B, Charcos-Llorens M, Chiggiato J, Clementi E, Coppini G, Coppola L, Cossarini G, Deidun A, Deudero S, D'Ortenzio F, Drago A, Drudi M, **El Serafy G**, Escudier R, Farcy P, Federico I, Fernández JG, Ferrarin C, Fossi C, Frangoulis C, Galgani F, Gana S, García Lafuente J, Sotillo MG, Garreau P, Gertman I, Gómez-Pujol L, Grandi A, Hayes D, Hernández-Lasheras J, Herut B, Heslop E, Hilmi K, Juza M, Kallos G, Korres G, Lecci R, Lazzari P, Lorente P, Liubartseva S, Louanchi F, Malacic V, Mannarini G, March D, Marullo S, Mauri E, Meszaros L, Mourre B, Mortier L, Muñoz-Mas C, Novellino A, Obaton D, Orfila A, Pascual A, Pensieri S, Pérez Gómez B, Pérez Rubio S, Perivoliotis L, Petihakis G, de la Villéon LP, Pistoia J, Poulain P-M, Pouliquen S, Prieto L, Raimbault P, Reglero P, Reyes E, Rotllan P, Ruiz S, Ruiz J, Ruiz I, Ruiz-Orejón LF, Salihoglu B, Salon S, Sammartino S, Sánchez Arcilla A, Sánchez-Román A, Sannino G, Santoleri R, Sardá R, Schroeder K, Simoncelli S, Sofianos S, Sylaios G, Tanhua T, Teruzzi A, Testor P, Tezcan D, Torner M, Trotta F, Umgiesser G, von Schuckmann K, Verri G, Vilibic I, Yucel M, Zavatarelli M and Zodiatis G (2019) ***Challenges for Sustained Observing and Forecasting Systems in the Mediterranean Sea***. Front. Mar. Sci. 6:568. doi: 10.3389/fmars.2019.00568

2018	El Serafy, GY. Calibration of a Forecasting Algae Bloom in the North Sea: Use of Remote Sensing Images, resubmitted after major revision, Journal of Environmental modelling and assessment.
2018	Laetitia Navarro, Néstor Fernández, Carlos Guerra, Robert Guralnick, Daniel Kissling, Maria Cecilia Londoño, Frank Muller-Karger, Eren Turak, Patricia Balvanera, Mark Costello, Aurelie Delavaud, Ghada El Serafy, Simon Ferrier, Ilse Geijzendorffer, Gary Geller, Walter Jetz, Eun-Shik Kim, HyeJin Kim, Corinne Martin, Melodie McGeoch, Tuyeni Heita Mwampamba, Jeanne Nel, Emily Nicholson, Nathalie Pettorelli, Michael E. Schaepman, Andrew Skidmore, Isabel Sousa Pinto, Sheila Vergara, Petteri Vihervaara, Haigen Xu, Tetsukazu Yahara, Mike Gill, Henrique M. Pereira, Monitoring biodiversity change through effective global coordination, Current Opinion in Environmental Sustainability, accepted for publication
2018	Marine and coastal ecosystem services on the science-policy-practice nexus: challenges and opportunities from 11 European case studies Journal: International Journal of Biodiversity Science, Ecosystem Services & Management (TBSM), open acess, DOI: 10.1080/21513732.2017.1417330
2017	Nathalie Pettorelli, Henrike Schulte to Buhne, Ayesha Tulloch, Gregoire Dubois, Cate Macinnis-Ng, Ana M. Queiros , David A. Keith, Martin Wegmann, Franziska Schrodt, Marion Stellmes, Ruth Sonnenschein, Gary N. Geller, Shovonlal Roy, Ben Somers, Nicholas Murray, Lucie Bland, Ilse Geijzendorffer, Jeremy T. Kerr, Stefanie Broszeit, Pedro J. Leitao, Clare Duncan, Ghada El Serafy, Kate S. He, Julia L. Blanchard, Richard Lucas, Paola Mairota, Thomas J. Webb & Emily Nicholson ,*Satellite remote sensing of ecosystem functions: opportunities, challenges and way forward,*Journal of Remote sensing and conversation. 2017 DOI: 10.1002/rse2.59
2017	M.Tene, D. E. Stuparu, D. Kurowicka, GY El Serafy, ,*Sensitivity analysis: extending the Morris method to handle parameter dependencies. Application on the Delft3D-WAQ sediment transport model for the southern North Sea, ,*Journal of Environmental Modeling and Software, Resubmission

Selected 5 year Conferences

2020	Spinosa, A., El Serafy, G., Wanke, S., Gaytan Aguilar, S., 2020. High Resolution Information Services at Sea for Ports and Aquaculture. Ocean Sciences Meeting, San Diego, CA, USA. 16-21 February 2020
2020	El Serafy, G., Wanke, S., Villars, N., Spinosa, A., 2020. Earth Observation Services For Wild Fisheries, Oystergrounds Restoration and Bivalve Mariculture along European Coasts. Ocean Sciences Meeting, San Diego, CA, USA. 16-21 February 2020.
2019	El Serafy, G., Meszaros, L., Wanke, S., & Sylaios, G. (2019). ODYSSEA: Operating Integrated Observatory Systems. In E. Özhan (Ed.), Proceedings of the Forteenth International MEDCOAST Congress on Coastal and Marine Sciences, Engineering, Management and Conservation (Vols. 1-2, pp. 89-100). Marmaris: Mediterranean Costal Foundation (MEDCOAST).
2019	Ziemba, A., Wanke, S., El Serafy, G., 2019. Introducing Probabilities to Serious Gaming: Blending Bayesian Networks with Gaming. Ecosystem Service Partnership World Congress 10, Hanover, Germany. Oct. 22, 2019.
2019	S. Wanke, A. Ziemba, Ghada El Serafy. A Bayesian Network Analysis of Trade-Offs Between Ecosystem Services in the Dutch Wadden Sea. European Geosciences Union, Vienna, Austria, April 9-12, 2019.

2019 Spinosa A., Ziemba A., Saponieri A., Navarro-Sanchez V., Damiani L., El Serafy G. 2019. Automatic Extraction of Shoreline from satellite images: a new approach. Conference: EGU General Assembly 2019. Vienna, Austria. Apr. 7-12. (Oral presentation) https://meetingorganizer.copernicus.org/EGU2019/EGU2019-18051.pdf

2018 El Serafy, G. *Use of EO in Monitoring and Management of Marine and Coastal Protected Areas,* INSPIRE Conference 2018, Antwerp, Belgium, 18-21 September

2018 El Serafy, G. *Activities of the Ecosystem Function Working Group,* 4th GEO BON All Hands meeting, 9-12 July 2018, Beijing, China

2018 El Serafy, G., Taylor, A. and Greb, S., *Water Quality Aquatic Services: Use of Data Science in the Aquawatch GEO Initiative,* European Geosciences Union General Assembly 2018,Vienna, Austria 8–13 April 2018

2018 Ziemba, A. and El Serafy, G*. Comparative study on uncertainty analyses for process-based models and infused remote sensing data products,* European Geosciences Union General Assembly 2018,Vienna, Austria 8–13 April 2018

2017 Ziemba A. and El Serafy G.,*Bridging the Information Gap : Water Quality Assessments of Aquaculture Infrastructure in the North Sea Through Ecological Models to Determine Scenario Based Ecosystem Service Trade-Offs,* MARE conference, Amsterdam, The Netherlands

2016 El Serafy, G., *The Round Table "150 Years of Ecology: An Evolving Science Challenging Society & Citizenship"*, European Parliament, Brussels October 142th, 2016

2016 Herman Hummel, Rutger de Wit, Ghada El Serafy, Arturas Razinkovas, Antonello Provenzale, Johannes Peterseil, Regino Zamora, Joao Pradinho Honrado, Dimitris Poursanidis, Arjen Boon, Alex Ziemba, Myra van der Meulen, Sander Wijnhoven, Christiaan Hummel,*The importance of Ecosystem Services required to qualify and install Marine Protected Areas – variable views of stakeholders and a comparison with other geographic domains.,*Ecosystem Service Partnership Conference, Antwerpen, Belgium, September 2016

2016 El Serafy, G., Boon, A., Ziemba, A., van der Muelen, M., Schulz, J., Ziv, G., Provenzale, A., Giamberini, S., Stritih, A., *Applying ecosystem services to optimize protected area management*, European Ecosystem Services Conference, Antwerp, Belgium, 19–23 September 2016

2016 El Serafy, G., *Applying ecosystem services concept to optimize protected area management and the issue of inherent uncertainty in future predictions*, "LIFE-ECOPOTENTIAL" MEETING, Irvine, California, USA, November 15-17-2016

2016 El Serafy, G., *Utilizing Earth Observation to quantify and map Ecosystem Services; Case Study : The Wadden Sea*, GEO BON Open Science Conference & All Hands Meeting, Leipzig, Germany, 4-8 July, 2016

Projects Undertaken in the last 5 years

Name of assignment or project: UNITED
Year: 2020-2024
Location: Europe
Client: European Union
Designation: H2020-BG05-2019; Grant No. 862915
Main project features: UNITED will combine several activities such as renewable energy and aquaculture, in the same marine space, including in multi-use platforms, that will serve to divide and reduce the costs of offshore operations and the demand on the space needed for different activities. UNITED will provide solutions to improve operation, planning, and management of multiple marine off-shore activities including propose business models to reduce costs and generate benefits to both the aquaculture and renewable energy sector.
To increase insight into potential business synergies, opportunities and reduction of risk concerns, a transition process towards practical implementation of multi-use in marine space that preferably starts in a testing format with pilot projects is highly required. Therefore, UNITED will use pilots, each including different combinations of solutions in an operational environment; the particular cases and operational circumstances differing between the pilots hence producing a broader understanding of operations under different circumstances. Industry partners and operators and the wider community of relevant stakeholders are included in the development and in implementation of the pilots. This will assure the economic, social and environmental viability of combining activities at sea in a single location (including legal and insurance aspects, health and safety issues and related risk management and its governance setting) whist ensuring social inclusion of local communities in the process, hence increasing societal acceptance for solutions. At an international level, UNITED is expected to directly impact progress towards international policy objectives in line with the UN Agenda 2030 and SDGs (i.e. SDG 13 on climate change, SDG 2 on food resources and reduction of poverty, SDG 14 on sustainable use of ocean resources).
Positions Held: Consortium Scientific Coordinator
Activities performed: Environmental and ecological impact assessment, development of site-specific technological solutions including sensors and monitoring systems, data management, optimization, information synthesis, development of a decision support system; stakeholder engagement, capacity building, ecological restoration and aquaculture at wind farms, integration of renewable energy; Supervision of doctoral candidate

Name of assignment or project: FORCOAST
Year: 2019-2022
Location: Europe
Client: European Union
Designation: DT-SPACE-01-EO-2018-2020; Grant No. 870465
Main project features: FORCOAST aims to provide information services that offer high resolution water quality and met-ocean indicators in coastal and nearshore areas, to improve operation, planning and management of different marine activities in the sectors of wild fisheries, oystergrounds restoration, and bivalve mariculture. The information products and services will be co-designed with stakeholders, thereby ensuring that these products and services are tailored to meet their needs. FORCOAST is developing, testing and demonstrating, in operational mode, novel Copernicus-based downstream information services that will incorporate Copernicus Marine, Land and Climate Services Products, local monitoring data and advanced modelling in the service. The services will integrate Copernicus Earth Observation Products with local models and other diverse data sources (local, regional or global) with ICT (enhancing new frontiers opened by web and use of cloud) across the different market segments. FORCOAST will provide consistent coastal data products, based on a standardized data processing scheme. FORCOAST is supporting the concept of developing an advanced platform and cloud computing for Copernicus-based downstream services utilizing one of the DIAS systems. The availability and accessibility of data and derived products generated will stimulate their exploitation by a wide range of user communities in the targeted sectors across European Seas.
Positions Held: Consortium Scientific Coordinator
Activities performed: Data science and integrated monitoring and assessment methods for wild fisheries, bivalve mariculture, and oysterground restoration

Name of assignment or project: HiSea
Year: 2019 - 2021
Location: Europe
Client: European Union
Designation: H2020-EU.2.1.6.1. and H2020-EU.2.1.6.3., Grant No. 720815
Main project features: to combine measurements and models to improve the understanding of the coastal environment. HiSea services will deliver information, readily available and with high resolution to fit seamlessly user‘s operation and management requirements. HiSea will provide a co-designed service that offers high resolution water quality data at sea answering to specific questions from the targeted port and the aquaculture sectors. HiSea will develop, in operational mode, novel Copernicus-based downstream services that will incorporate Copernicus Marine, Land and Climate Services Products, local monitoring data, and advanced modelling in the service integrated representing an added value for the potential Copernicus data users. The downstream service includes among others early warning alerts, alarms to potential risks for the daily activities; real time crisis management to simulate mitigation actions to adverse effects; automatic reporting on the key performance indicators; standard datasets; and building knowledge data base of cause-effect relations (business intelligence). From the data storage to the processing using Docker containers, the HiSea platform will be fully compliant to cloud deployment, prepared to DIAS infrastructure. The immediate market uptake of the HiSea services by the targeted ports and aquaculture users is guaranteed. Linking to the market and experience of the partners to deliver similar services, HiSea has the capability to demonstrate the proposed services at regional or even global scale.
Positions Held: **Consortium Scientific Coordinator**
Activities performed: Data science and integrated monitoring and assessment methods for ports and aquaculture. Supervision of Doctoral student

Name of assignment or project: E-SHAPE
Year: 2019 - 2023
Location: Europe
Client: European Union
Designation: H2020-SC5-2018-2019-2020
Main project features: The E-Shape project will implement a coordinated and comprehensive EO data exploitation initiative through collaboration amongst the European GEO Members and Participating Organizations in order to accelerate the users' uptake of open EO data and information for the benefit of Europe. The general objectives are to set-up and promote a sustainable organization dedicated to users' uptake of European EO resources, building on Copernicus and GEOSS through the development of co-design pilots (i.e. application-oriented products, services or solutions) built on a user-centric approach and delivering economic, social and policy value to European citizens.
Positions Held: Pilot Leader
Activities performed: Earth Observation data exploitation, co-design downstream services.

Name of assignment or project: Water Harmony
Year: 2019 - 2021
Location: Europe
Client: NWO
Designation: ERA-NET Co-fund Action WaterWorks2017
Main project features: validate innovative technologies that enable safer, secure and economically more feasible use and reuse of water, alongside addressing challenges with emerging pollutants. With joint and harmonised efforts, it intends to increase the public engagement to sustainably address the water challenges that connect sciences and society by using modern, harmonised and shared approaches and facilitate policy decisions favouring actions that close the demand-supply gap in the water sector faster by providing scientific backgrounds and social mobilisation of policy makers. The project aims at closing the water cycle gap by harmonising global good practices of sound and smart water management concepts that address emerging challenges and mobilise stakeholders.
Positions Held: WorkPackage Leader
Activities performed: Use of BigData, real-time forecasting using models

Name of assignment or project: GREEN
Year: 2017 - 2018
Location: Europe
Client: European Union
Designation: ECHO/SUB/2016/740172/PREV18, Grant No. 740172
Main project features: To improve the resilience of society, both structural and non-structural measures and grey and green infrastructure will be needed. In particular, a greater deployment of nature-based solutions such as green infrastructures (GIs) is being increasingly advocated by European institutions NGO's, governments and financing bodies as a part of flexible, effective and efficient, and no-regret measures for disaster risk reduction and adaptation to climate. The rationale behind the promotion of GI based solutions is that they have the potential to contribute to both risk reduction (including, for example, flood and drought risk) as well as providing ancillary benefits such as positive effects on water quality, recreational amenities, economic resilience in agriculture and the provisioning of a wider range of other ecosystem services. Despite this recognized potential grey solutions have often prevailed over green solutions; primarily because grey infrastructure is often perceived to be more effective, efficient and easier to implement. GREEN addresses these shortcomings and provides the necessary innovation in methods, tools, and solutions to appropriately promote the role of GI for DRR, climate change adaptation (CCA) and sustainable.
Positions Held: Project initiator and Work package Lead
Activities performed: Data science for ecosystem modelling and services (Green Infrastructure), integrated monitoring and assessment methods for Green Infrastructures. Supervision of Doctoral student

Ghada El Serafy Associate Prof. Dr. Ir.

Name of assignment or project: ODYSSEA
Year: 2017 - present
Location: European Union
Client: European Union
Designation: H2020-MSCA-RISE-2015, Grant No. 691053
Main project features: ODYSSEA will develop, operate and demonstrate an interoperable and cost-effective platform that fully integrates networks of observing and forecasting systems across the Mediterranean basin, addressing both the open sea and the coastal zone. The platform will collect its data from the many databases maintained by agencies, public authorities, research institutions and universities of Mediterranean EU and non-EU countries, integrating existing earth observation facilities and networks in the Mediterranean Sea building on key initiatives such as Copernicus, GEOSS, GOOS, EMODNet, ESFRI, Lifewatch, Med-OBIS, GBIF, AquaMaps, Marine IBA e-atlas, MAPAMED and others with marine and maritime links.
Positions held: Scientific Manager and Work package leader
Activities performed: Planning and execution of strategic research and development related to marine environmental quality and ecosystem health in the Mediterranean, integrated monitoring and modelling of marine water quality

Name of assignment or project: ECOPOTENTIAL: improving future ecosystem benefits through earth observations
Year: 2015 - 2020
Location: European Union
Client: European Union (H2020)
Designation: H2020-SC5-2014-2015, Grant No. 641762
Main project features: ECOPOTENTIAL is a large European-funded H2020 project that focuses its activities on a targeted set of internationally recognised Protected Areas, blending Earth Observations from remote sensing and field measurements, data analysis and modelling of current and future ecosystem conditions and services. ECOPOTENTIAL considers cross-scale geosphere-biosphere interactions at regional to continental scales, addressing long-term and large-scale environmental and ecological challenges.
The best use of Earth Observation (EO) and monitoring data will be made possible. New modelling approaches including information from EO data will be developed, ecosystem services in current and future conditions will be assessed and the requirements of future protected areas will be defined.
The consortium consists of 47 partners.
Positions held: Leader of the ecosystem services work package
Activities performed: Data analysis using Earth Observations from remote sensing and field measurements, ecosystem monitoring and modelling, uncertainty analysis, sensitivity analysis. Supervision of Doctoral Student.

Ghada El Serafy Associate Prof. Dr. Ir.

Name of assignment or project: ECOSTRESS - Ecological coastal strategies and Tools for Resilient European Societies using Remote sensing data in assessing environmental hazards in the Natura 2000 Wadden sea
Year: 2015 - 2018
Location: European Union
Client: European Union (H2020)
Designation: H2020-SC5-2014-2015, Grant No. 641762
Main project features: The focus of ECOSTRESS was on the blending of Earth Observations from remote sensing and field measurements in order to produce high value blended data products. Additionally the project included data analysis as well as modelling activities, exploring both the current and future states of ecosystems as well as affiliated ecosystem services.
Positions held: **Coordinator and Work Package Leader.**
Activities performed: multiple tasks within various project work packages related to data sciences for coastal ecosystem modelling and services

Supervision and Teaching Assignment

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PhD Students

2020-Present	Supervisor and co-promotor, Rieke Santjer, Calibration of Information systems for seaweed production in a multi-use platform in the North Sea, tentative date: December 2024, Delft University of Technology
2020-Present	Supervisor, Elias De Korte, Data Assimilation of Remote sensing data in an operational Information system for energy production in a multi-use platform in the North Sea Information systems for multi-use platform in the North Sea, tentative date: December 2024, Delft University of Technology
2019-Present	Supervisor, Anna Spinosa, Data fusion in High Resolution Copernicus-based Water quality Information Services for aquaculture sector, tentative date: December 2023, Delft University of Technology
2017-Present	Supervisor, Lorinc Meszaros, Quantification of Climate Change induced uncertainty in future coastal ecosystem state, tentative date : March 2021, Delft University of Technology
2016-2020	Joint-Supervisor, Lyuba Novi, Numerical methods development and implementation for high-resolution simulations of coastal erosion and eco-morphodynamics, tentative date : January 2021, University of Pisa, Italy
2016	Defence Committee, Luca Ceni, Soil Moisture Data Assimilation for Improved Flash Flood Prediction in Mediterranean Catchments, date : October 2016, IUSS Pavia & University of Genoa, Italy
2015-2021	Supervisor, Alexander Ziemba, Data Assimilation of Earth Observation Data for Ecological Modelling, tentative date : December 2021, Delft University of Technology
2010-2014	Supervisor, Ivan David Garcia, Towards a data assimilation system for morphodynamic Modeling, awarded : May 2014, Delft University of Technology
2009-2013	Supervisor, Joanna Pelc, Data Assimilation for Marine Ecosystem Models, awarded : July 2013, Delft University of Technology

Master of Science Students

2002-present	Hundereds of MSc's supervision from International and European Universities and

Courses Taught

2018	Short Course on Data Assimilation and Bayesian Networks, University of Pavia
2018	Introduction to operational oceanography – Potential Products and Services, ODYSSEA Summer School Kavala 2018
2017	Short workshop on the Use of Earth Observation in biogeochemical models and the setting Information systems, Poli University of Bari
2016	Short Course on Intoduction to Data Assimilation and Data Science, Hydroinformatics short courses session, EGU, Vienna, Austria
2016	Short Workshop on Making decisions under uncertainties in environmental assessments, Future water workshop, University of Pisa, Italy
2016	3-credit course on Data Assimilation and Data Science, UME Graduate School, Understanding & managing extremes, IUSS, Pavia, Italy
2016	Lectured at a summer school held in Grand Paradiso, Italy, lead a course on the topics of cross-scale interactions and uncertainty quantification, June 14-17, 2016.
2011	OpenDa & Data Assimilation in operational forecasting systems, Data Assimilation Summer School in Romania
2010	Data Mining and Data Assimilation Course, DeltaBrain Course, Deltares
2008	Short Course on Data Assimilation in IHE Delft Institute for Water Education (UNESCO-IHE)
2001 - present	Teaching various national and international courses on data-assimilation techniques, data science and their applications within Deltares Academy.
1991 - 1992	Teaching undergraduate courses of Hydraulics, irrigation and coastal engineering, Civil Engineering Department, Faculty of Engineering & Technology, Helwan University, Cairo, Egypt.
2000 - present	Reviewer of cited papers for among others, IAHR Hydoinformatics Journal, Journal of Hydrology, Journal of applied mathematical modelling, Journal of Stochastic Environmental Research and Risk Assessment, Ocean Dynamics, Journal of Environmental Modelling and Software.