

# Oleg Belyaev K.

(+34) 630629151  
Residence: Cádiz, SP  
Nationality: Spain

Oceanographer & GIS Scientist

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Website: www.olegbelyaev.com

Growing up immersed in dual cultures and languages has endowed me with a global perspective and advanced critical thinking skills, enabling me to approach and solve problems effectively. Holding a Bachelor's degree in Biology and a Master's in Coastal Oceanography, my current research focuses on integrating biogeochemical insights with earth observation to understand the complexities of marine ecosystems, particularly in the Antarctic region. My academic journey is driven by a passion for understanding and preserving marine biodiversity, leveraging my expertise in both theoretical and practical aspects of marine science. Outside academia, I enjoy exploring diverse cultures, engaging in outdoor activities, and spending quality time with friends and family.

## RESEARCH EXPERIENCE

### PHD PROGRAM / DICHOSO ANTARCTIC PROJECT

January 2024 — Ongoing

*Institute of Marine Sciences of Andalusia (ICMAN-CSIC) - Cádiz University (UCA)*

*Cádiz, Spain*

- Describing the biogeochemical features of Deception Island, Antarctica.
- Understanding the physical-biological interaction of Deception Island ecosystem and its relationship with the biochemical budgets.
- Forecasting future trends and characterizing biogeochemical current budgets of Deception Island.

### REMOTE SENSING SCIENTIST / MARINE STRATEGIES PROJECT

May 2023 — December 2023

*Institute of Marine Sciences of Andalusia (ICMAN-CSIC)*

*Cádiz, Spain*

- Worked on satellite-based algorithms for the detection of marine heat events.
- Continued the development of the Andalusian Marine Observatory.

### REMOTE SENSING SCIENTIST / EUROSEA PROJECT

August 2022

*Marine Institute (MI)*

*Galway, Irealnd*

- Collaboration at Galway's Marine Institute within the framework of the EuroSea project for the development of an observation and warning system for risks derived from extreme marine events.

### REMOTE SENSING SCIENTIST / SAT4ALGAE PROJECT

November 2021 — March 2023

*Institute of Marine Sciences of Andalusia (ICMAN-CSIC)*

*Cádiz, Spain*

- Generated satellite tools for the detection of algal blooms, focusing on both macroalgae and microalgae.
- Contributed to the development of the Andalusian Marine Observatory as part of the SOLAUT project.
- Worked on the Sat4Algae project, emphasizing the advancement of marine sciences through satellite technology.
- Collaborated in multidisciplinary teams to enhance satellite-based environmental monitoring capabilities.

## FIELDWORK EXPERIENCE

### XXXVII SPANISH ANTARCTIC CAMPAIGN

February 10 — March 26, 2024

*"Gabriel de Castilla" Spanish Antarctic Base / "Hespérides" Research Vessel*

*Deception Island, Antarctica*

- 22 days of fieldwork at the "Gabriel de Castilla" base at Deception Island.
- 12 days onboard the R/V "Hespérides".
- Participation as part of the DICHOSO Antarctic Project Framework.

## PUBLICATIONS

- Belyaev, O., Román A., Belliure J., Navarro G., Barbero L., & Tovar-Sánchez A. *Assessing Topographic Features and Population Abundance in an Antarctic penguin colony through UAV-Based Deep-Learning Models. International Journal of Applied Earth Observation and Geoinformation*, 2024.
- Belyaev, O., Huertas, I.E., Navarro G., Amaya-Vías S., De La Paz M., Sparaventi E., Heredia S., Sukekava C. F., Laglera L. M., & Tovar-Sánchez A. *Hydrothermal alteration of seawater biogeochemistry in Deception Island (South Shetland Islands, Antarctica). Frontiers in Marine Science*, 2024.
- Fernández-Barba, M., Belyaev, O., Huertas, I.E., & Navarro G. *Marine heatwaves in a shifting Southern Ocean induce dynamical changes in primary production. Communications Earth & Environment*, 2024.
- Pereiro D., Belyaev, O., ... & Cusack C. *An observational and warning system for the aquaculture sector. Frontiers in Marine Science*, 2024.
- Belyaev, O., Sparaventi, E., Navarro G., Rodríguez-Romero A., & Tovar-Sánchez A. *The contribution of penguin guano to the Southern Ocean iron pool. Nature Communications*, 2023.
- Pereiro D., Cusack C., Dunbar M. B., Navarro G., Alvarez-Berastegui, D., O'Carroll, J., Belyaev, O., ... & Wilkes, R. *Connections between "Extreme Marine Events" and Biological EOVs Report. GEOMAR OceanRep*, 2022.

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- **Belyaev, O.,** Caballero, I., & Navarro G. *Servicio de monitorización oceánica en tiempo cuasi real a través de la teledetección: Observatorio Marino de Andalucía. Conference Book of the Spanish Remote Sensing Association, 2021.* ISBN: 978-84-9769-383-7
- **Belyaev, O.,** Román A., Navarro G., & Tovar-Sánchez A. *Penguin population quantification from UAV imagery using deep-learning in Deception Island (South Shetland Islands, Antarctica). Conference Book of the Young Sea Researchers Conference (JIs del Mar, 2021.* ISBN: 978-84-09-36126-7

## CONFERENCES

- **XX Congress of the Spanish Association of Remote Sensing (AET) 2024.** National congress, Cádiz, June 2024. Listener & co-organizer.
- **II International Meeting on Knowledge and Blue Economy – InnovAzul 2022.** Meeting of students with companies and professionals from the Blue Economy sectors, Cádiz, November 29 - December 2, 2022. Listener.
- **2022 Sustainable Ocean Summit (SOS) & Global Blue Finance Summit (BlueFIN).** International congress, Barcelona, October 2022. Listener.
- **VIII International Symposium on Marine Sciences (ISMS) 2022.** International congress, Gran Canaria, July 2022. *Poster presentation* – Satellite monitoring of forecasted oceanic variables through the Marine Observatory of Andalusia.
- **XIX Congress of the Spanish Association of Remote Sensing (AET) 2022.** National congress, Pamplona, June-July 2022. *Poster presentation* – Ocean monitoring service through remote sensing: Andalusian Marine Observatory.
- **EuroSea Annual Meeting 2022.** European congress, Cádiz, May 2022. *Oral presentation* - Development of a near-real-time remote sensing ocean monitoring service: the Andalusian Marine Observatory.
- **III Congress of Young Marine Researchers (JIS).** International congress, Motril, Granada, September 2021. *Oral presentation* – Quantification of penguin populations using neural networks on Deception Island (South Shetland Islands, Antarctica).
- **XXXIII Conference of the Spanish Association of Entomology.** National congress, Almería, November 15-18, 2017. *Oral presentation* - Bergmann's Temporal Rule? Contrasting effects of temperature and solar radiation on the body size of dung beetles across circadian rhythms.
- **IX Spanish Space Students Conference at LEEM-UPM.** Madrid, 2017. *Co-organizer* & Listener.

## PROJECTS

- **DICHOSO - Contribution of water masses of Deception Island to biogeochemical inventories of the Southern Ocean: current budgets and future trends (Ref: PID2021-125783OB-I00).** PI: Emma Huertas & Antonio Tovar-Sánchez. *PhD Program.* 2024 — ongoing
- **Marine Strategies - Application of models for the quantification of cumulative impacts on pelagic habitats in pilot areas.** PI: Gabriel Navarro *Development of satellite-based algorithms for the detection of marine heat events.* 2023
- **EuroSea - Improving the European ocean observing and forecasting system in a global context. (Ref: 862626).** *Development of Irish part of the Marine Observatory within the framework of this project.* 2022
- **Sat4Algae Project (Ref: PY20-00244. 2021-2022), Project of Excellence, Junta de Andalucía.** PI: Gabriel Navarro. *Development of the Andalusian Marine Observatory within the framework of this project.* 2021 — 2023
- **PiMetAn Project (Ref: RTI2018-098048-B-100),** Ministry of Science and Innovation. PI: Antonio Tovar-Sánchez. *Master's thesis developed within the framework of this project.* 2021

## EDUCATION

- **PhD. in Marine Science and Technology, CADIZ UNIVERSITY, Spain** 2024 — ongoing  
*Antarctic Biogeochemistry and Remote Sensing research*
- **MSc. in Oceanography, CADIZ UNIVERSITY, Spain** 2020 — 2021  
*Deep understanding of biological, physical, chemical and geological processes in the coastal oceanic systems.*
- **BSc. in Molecular Biology (Erasmus+ Program), UMEÅ UNIVERSITY, Sweden** 2018 — 2019  
*Advanced molecular biology and genetics laboratory techniques, Neurobiology.*
- **BSc. in Biology, ALCALA UNIVERSITY, Spain** 2015 — 2018  
*Understanding of the basic structures and dynamics of living organisms and its interactions with their environment.*

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## TECHNICAL PROFICIENCIES

**Text Edition and Database** Git,  $\LaTeX$   
**GIS Software** QGIS, UGCS, Google Earth Engine  
**Scientific Programming** Python, JavaScript (for GEE), MATLAB  
**Design** Adobe Illustrator, Photoshop, AfterEffects

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## COURSES

**PhD Course on spatial data analysis in ecology with R** Cádiz University  
**A1-A3 & A2 UAV Certified Operator** AESA  
**SSI Divemaster** +220 logged dives and +100 OW Assisted OW Courses, Nitrox Certified. Princess Divers  
**Google Earth Engine** CSIC  
**Field-work Risk Management** CSIC

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## AREAS OF EXPERTISE

- Geographical Information Systems, UAVs, Coastal Oceanography Processes
- Neural-network based object detection
- Scientific illustration
- Teamwork, communication, pathfinder
- Cross-Functional Team Leadership

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## LANGUAGES

**Spanish, Russian** Native level  
**English** Fluent speaker  
**French** Basic speaker

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## PERSONAL ACTIVITIES AND ADDITIONAL INFORMATION

Coral Restoration program with OceanQuest and Sea Sepherd in Thailand 2020  
European Driving License B 2016  
Co-Manager of Literature and Philosophy Club, *La flauta Magica* in Madrid 2015-2017

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## PRIVACY

I hereby authorise the use of my personal data in accordance to the GDPR 679/16-"European regulation on the protection of personal data"