



sea state
cci


Project Science Publications

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1.0	31 January 2022	First version for ESA approval
1.1	14 June 2022	Updated and expanded list of publications. Removal of abstracts for clarity of reading (doi links included instead).

1. Introduction

This document presents a covering note for the peer-reviewed science publications produced under funding, partial funding or results from **Sea_State_cci**. It is deliverable 5.2 of the project, prepared at the end of the Phase 1 project.

The remainder of this Science Publications summary provides an alphabetical list of references by year of the project.

2. List of Sea_State_cci Science Publications

2018 publications

Rikka, S., Pleskachevsky, A., Jacobsen, S., Alari, V., 2018. Meteo-Marine Parameters from Sentinel-1 SAR Imagery: Towards Near Real-Time Services for the Baltic Sea, Remote Sensing 10(5)-757, 17p.

<https://doi.org/10.3390/rs10050757>

2019 publications

Ardhuin, F., Stopa, J.E., Chapron, B., Collard, F., Husson, R., Jensen, R.E., Johannessen, J., Mouche, A., Passaro, M., Quartly, G.D., Swail, V., Young, I., 2019. Observing Sea States. Front. Mar. Sci. 6.

<https://doi.org/10.3389/fmars.2019.00124>

Dodet, G., Melet, A., Ardhuin, F., Bertin, X., Idier, D., Almar, R., 2019. The Contribution of Wind-Generated Waves to Coastal Sea-Level Changes. Surv Geophys.

<https://doi.org/10.1007/s10712-019-09557-5>

Dobler, D., Huck, T., Maes, C., Grima, N., Blanke, B., Martinez, E., Ardhuin, F., 2019. Large impact of Stokes drift on the fate of surface floating debris in the South Indian Basin. Marine Pollution Bulletin 148, 202–209.

<https://doi.org/10.1016/j.marpolbul.2019.07.057>

Morrow, R., Fu, L.-L., Ardhuin, F., Benkiran, M., Chapron, B., Cosme, E., d'Ovidio, F., Farrar, J.T., Gille, S.T., Lapeyre, G., Le Traon, P.-Y., Pascual, A., Ponte, A., Qiu, B., Rasclé, N., Ubelmann, C., Wang, J., Zaron, E.D., 2019. Global Observations of Fine-Scale Ocean Surface Topography With the Surface Water and Ocean Topography (SWOT) Mission. Frontiers in Marine Science 6.

<https://doi.org/10.3389/fmars.2019.00232>

Stopa, J. E., Ardhuin, F., Stutzmann, E., & Lecocq, T. (2019). Sea state trends and variability: Consistency between models, altimeters, buoys, and seismic data (1979–2016). Journal of Geophysical Research: Oceans, 124.

<https://doi.org/10.1029/2018JC014607>

Villas Bôas, A.B., Ardhuin, F., Ayet, A., Bourassa, M.A., Brandt, P., Chapron, B., Cornuelle, B.D., Farrar, J.T., Fewings, M.R., Fox-Kemper, B., Gille, S.T., Gommenginger, C., Heimbach, P., Hell, M.C., Li, Q., Mazloff, M.R., Merrifield, S.T., Mouche, A., Rio, M.H., Rodriguez, E., Shutler, J.D., Subramanian, A.C., Terrill, E.J., Tsamados, M., Ubelmann, C., van Sebille, E., 2019. Integrated Observations of Global Surface Winds, Currents, and Waves: Requirements and Challenges for the Next Decade. Frontiers in Marine Science 6.

<https://doi.org/10.3389/fmars.2019.00425>

2020 publications

Ardhuin, F., Otero, M., Merrifield, S., Grouazel, A., Terrill, E., 2020. Ice Breakup Controls Dissipation of Wind Waves Across Southern Ocean Sea Ice. *Geophysical Research Letters* 47, e2020GL087699.

<https://doi.org/10.1029/2020GL087699>

Bôas, A.B.V., Cornuelle, B.D., Mazloff, M.R., Gille, S.T., Ardhuin, F., 2020. Wave–Current Interactions at Meso- and Submesoscales: Insights from Idealized Numerical Simulations. *Journal of Physical Oceanography* 50, 3483–3500.

<https://doi.org/10.1175/JPO-D-20-0151.1>

Cox, R., Ardhuin, F., Dias, F., Autret, R., Beisiegel, N., Earlie, C.S., Herterich, J.G., Kennedy, A., Paris, R., Raby, A., Schmitt, P., Weiss, R., 2020. Systematic Review Shows That Work Done by Storm Waves Can Be Misinterpreted as Tsunami-Related Because Commonly Used Hydrodynamic Equations Are Flawed. *Frontiers in Marine Science* 7.

Dodet, G., Piolle, J.-F., Quilfen, Y., Abdalla, S., Accensi, M., Ardhuin, F., Ash, E., Bidlot, J.-R., Gommenginger, C., Marechal, G., Passaro, M., Quartly, G., Stopa, J., Timmermans, B., Young, I., Cipollini, P., Donlon, C., 2020. The Sea State CCI dataset v1: towards a sea state climate data record based on satellite observations. *Earth System Science Data* 12, 1929–1951.

<https://doi.org/10.5194/essd-12-1929-2020>

Lecocq, T., Ardhuin, F., Collin, F., Camelbeeck, T., 2020. On the Extraction of Microseismic Ground Motion from Analog Seismograms for the Validation of Ocean-Climate Models. *Seismological Research Letters* 91, 1518–1530.

<https://doi.org/10.1785/0220190276>

Popp, T., Hegglin, M.I., Hollmann, R., Ardhuin, F., Bartsch, A., Bastos, A., Bennett, V., Boutin, J., Brockmann, C., Buchwitz, M., Chuvieco, E., Ciais, P., Dorigo, W., Ghent, D., Jones, R., Lavergne, T., Merchant, C.J., Meyssignac, B., Paul, F., Quegan, S., Sathyendranath, S., Scanlon, T., Schröder, M., Simis, S.G.H., Willén, U., 2020. Consistency of Satellite Climate Data Records for Earth System Monitoring. *Bulletin of the American Meteorological Society* 101, E1948–E1971.

<https://doi.org/10.1175/BAMS-D-19-0127.1>

Quartly, G.D., Kurekin, A.A., 2020. Sensitivity of Altimeter Wave Height Assessment to Data Selection. *Remote Sensing* 12, 2608.

<https://doi.org/10.3390/rs12162608>

Quilfen, Y., Chapron, B., 2020. On denoising satellite altimeter measurements for high-resolution geophysical signal analysis. *Advances in Space Research*.

<https://doi.org/10.1016/j.asr.2020.01.005>

Rusu, L., 2020. A projection of the expected wave power in the Black Sea until the end of the 21st century. *Renewable Energy* 160, 136–147.

<https://doi.org/10.1016/j.renene.2020.06.092>

Timmermans, B.W., Gommenginger, C.P., Dodet, G., Bidlot, J.-R., 2020. Global Wave Height Trends and Variability from New Multimission Satellite Altimeter Products, Reanalyses, and Wave Buoys. *Geophysical Research Letters* 47, e2019GL086880.

<https://doi.org/10.1029/2019GL086880>

Timmermans, B., Shaw, A.G.P., Gommenginger, C., 2020. Reliability of Extreme Significant Wave Height Estimation from Satellite Altimetry and In Situ Measurements in the Coastal Zone. *Journal of Marine Science and Engineering* 8, 1039.

<https://doi.org/10.3390/jmse8121039>

Schlembach, F., Passaro, M., Quartly, G.D., Kurekin, A., Nencioli, F., Dodet, G., Piollé, J.-F., Ardhuin, F., Bidlot, J., Schwatke, C., Seitz, F., Cipollini, P., Donlon, C., 2020. Round Robin Assessment of Radar Altimeter Low Resolution Mode and Delay-Doppler Retracking Algorithms for Significant Wave Height. *Remote Sensing* 12, 1254.

<https://doi.org/10.3390/rs12081254>

2021 publications

Alday, M., Accensi, M., Ardhuin, F., Dodet, G., 2021. A global wave parameter database for geophysical applications. Part 3: Improved forcing and spectral resolution. *Ocean Modelling* 166, 101848.

<https://doi.org/10.1016/j.ocemod.2021.101848>

Hochet, A., Dodet, G., Ardhuin, F., Hemer, M., Young, I., 2021. Sea State Decadal Variability in the North Atlantic: A Review. *Climate* 9, 173.

<https://doi.org/10.3390/cli9120173>

Marechal, G., Ardhuin, F., 2021. Surface Currents and Significant Wave Height Gradients: Matching Numerical Models and High-Resolution Altimeter Wave Heights in the Agulhas Current Region. *Journal of Geophysical Research: Oceans* 126, e2020JC016564.

<https://doi.org/10.1029/2020JC016564>

Passaro, M., Hemer, M.A., Quartly, G.D., Schwatke, C., Dettmering, D., Seitz, F., 2021. Global coastal attenuation of wind-waves observed with radar altimetry. *Nat Commun* 12, 3812.

<https://doi.org/10.1038/s41467-021-23982-4>

Quartly, G.D., Chen, G., Nencioli, F., Morrow, R., Picot, N., 2021. An Overview of Requirements, Procedures and Current Advances in the Calibration/Validation of Radar

Altimeters. Remote Sensing 13, 125.

<https://doi.org/10.3390/rs13010125>

Rusu, L., Rusu, E., 2021. Evaluation of the Worldwide Wave Energy Distribution Based on ERA5 Data and Altimeter Measurements. Energies 14, 394.

<https://doi.org/10.3390/en14020394>

Rusu, E., Rusu, L., 2021. An evaluation of the wave energy resources in the proximity of the wind farms operating in the North Sea. Energy Reports, 2021 6th International Conference on Advances on Clean Energy Research 7, 19–27.

<https://doi.org/10.1016/j.egy.2021.05.058>

Rusu, L., Onea, F., Rusu, E., 2021. The Expected Impact of Marine Energy Farms Operating in Island Environments with Mild Wave Energy Resources—A Case Study in the Mediterranean Sea. Inventions 6, 33.

<https://doi.org/10.3390/inventions6020033>

Schlembach, F., Passaro, M., Quartly, G.D., Kurekin, A., Nencioli, F., Dodet, G., Piollé, J.-F., Arduin, F., Bidlot, J., Schwatke, C., Seitz, F., Cipollini, P., Donlon, C., 2021. Correction: Schlembach, F., et al. Round Robin Assessment of Radar Altimeter Low Resolution Mode and Delay-Doppler Retracking Algorithms for Significant Wave Height. Remote Sens. 2020, 12, 1254. Remote Sensing 13, 1182.

<https://doi.org/10.3390/rs13061182>

Scott, T., McCarroll, R.J., Masselink, G., Castelle, B., Dodet, G., Saulter, A., Scaife, A.A., Dunstone, N., 2021. Role of Atmospheric Indices in Describing Inshore Directional Wave Climate in the United Kingdom and Ireland. Earth's Future 9, e2020EF001625.

<https://doi.org/10.1029/2020EF001625>

Stopa, J.E., 2021. Seasonality of wind speeds and wave heights from 30 years of satellite altimetry. Advances in Space Research, 25 Years of Progress in Radar Altimetry 68, 787–801.

<https://doi.org/10.1016/j.asr.2019.09.057>

2022 publications

Dodet, G., Abdalla, S., Alday, M., Accensi, M., Bidlot, J., Arduin, F., 2022. Error characterization of significant wave heights in multi-decadal satellite altimeter product, model hindcast and in situ measurements, using triple collocation technique. Journal of Atmospheric and Oceanic Technology 1.

<https://doi.org/10.1175/JTECH-D-21-0179.1>

Schlembach, F., Passaro, M., Dettmering, D., Bidlot, J., Seitz, F., 2022. Interference-sensitive coastal SAR altimetry retracking strategy for measuring significant wave height. Remote Sensing of Environment 274, 112968.

<https://doi.org/10.1016/j.rse.2022.112968>

Collard, F., Marie, L., Nouguier, F., Kleinherenbrink, M., Ehlers, F., Arduin, F., (in press, J. Geophys. Res. Oceans). Wind-wave attenuation under sea ice in the Arctic: a review of remote sensing capabilities.

Preprint at <https://doi.org/10.1002/essoar.10510961.1>

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