

- Neumann B, Vafeidis AT, Zimmermann J, Nicholls RJ. 2015. Future coastal population growth and exposure to Sea-level rise and coastal flooding – a global assessment. *PLoS ONE*. 10(3). DOI:10.1371/journal.pone.0118571.
- Oppenheimer M, Glavovic BC, Hinkel J, van de Wal R, Magnan AK, Abd-Elgawad A, Cai R, CifuentesJara M, DeConto RM, Ghosh T, et al. 2019. Sea level rise and Implications for low-lying Islands, coasts and communities. In: Pörtner H-O, Roberts DC, Masson-Delmotte V, Zhai P, Tignor M, Poloczanska E, Mintenbeck K, Alegría A, Nicolai M, Okem A, Petzold J, Rama B, Weyer NM, editors. IPCC special report on the ocean and cryosphere in a changing climate. <https://www.ipcc.ch/srocc/cite-report/>.
- Peltier R. 2004. Global glacial isostasy and the surface of the ice-age earth: the ICE-5G (VM2) model and GRACE. *Annu Rev Earth Planet Sci*. 32:111–149.
- Purkey S, Johnson GC. 2010. Warming of the global abyssal and deep southern ocean waters between the 1990s and 2000s: contributions to global heat and sea level rise budgets. *Jour Clim*. DOI:10.1175/2010JCLI3682.1.
- Quartly GD, Legeais JF, Ablain M, Zawadzki L, Fernandes MJ, Rudenko S, Carrère L, García PN, Cipollini P, Andersen OB, Poisson JC. 2017. A new phase in the production of quality-controlled sea level data. *Earth Syst Sci Data*. 9:557–572. DOI:10.5194/essd-9-557-2017.
- Ray RD, Douglas C. 2011. Experiments in reconstructing twentieth-century sea levels. *Prog Oceanogr*. 91:495–515.
- Shepherd A, Ivins ER, Barletta VR, Bentley MJ, Bettadpur S, Briggs KH, Bromwich DH, Forsberg R, Galin N, et al. 2012. A reconciled estimate of ice-sheet mass balance. *Science*. 338(6111):1183–1189. DOI: 10.1126/science.1228102.
- Taburet G, Sanchez-Roman A, Ballarotta M, Pujol M-I, Legeais J-F, Fournier F, Faugere Y, Dibarboure G. 2019. DUACS DT2018: 25 years of reprocessed sea level altimetry products. *Ocean Sci*. 15:1207–1224. DOI:10.5194/os-15-1207-2019.
- United Nations. 2017. The ocean conference, the Ocean fact sheet. <https://www.un.org/sustainabledevelopment/wp-content/uploads/2017/05/Ocean-fact-sheet-package.pdf>.
- United Nations projections. 2015 Jul 29. The world population prospects: 2015 revision. <https://www.un.org/en/development/desa/publications/world-population-prospects-2015-revision.html>.
- von Schuckmann K, Palmer MD, Trenberth KE, Cazenave A, Chambers D, Champollion N, Wild M. 2016. Earth's energy imbalance: an imperative for monitoring. *Nat Clim Change*. 26:138–144.
- Vousdoukas MI, Mentaschi L, Voukouvalas E, Bianchi A, Dottori F, Feyen L. 2018. Climatic and socioeconomic controls of future coastal flood risk in Europe. *Nat Clim Change*. 776–780:8–9. DOI:10.1038/s41558-018-0260-4.
- Watson CS, White NJ, Church JA, King MA, Burgette RJ, Legresy B. 2015. Unabated global mean sea level over the satellite altimeter era. *Nat Clim Change*. DOI:10.1038/NCLIMATE2635.
- WCRP. 2018. Global sea level budget group: global sea-level budget 1993–present. *Earth Syst Sci Data*. 10:1551–1590. DOI:10.5194/essd-10-1551-2018.
- WMO. 2018. Statement on the state of the global climate 2018, World Meteorological Organization, WMO-No 1233. [https://library.wmo.int/doc\\_num.php?explnum\\_id=5789](https://library.wmo.int/doc_num.php?explnum_id=5789).
- Wong PP, Losada IJ, Gattuso J-P, Hinkel J, Khattabi A, McInnes KL, Saito Y, Sallenger A. 2014. Coastal systems and low-lying areas. In: Field CB, Barros VR, Dokken DJ, Mach KJ, Mastrandrea MD, Bilir TE, Chatterjee M, Ebi KL, Estrada YO, Genova RC, Girma B, Kissel ES, Levy AN, MacCracken S, Mastrandrea PR, White LL, editors. *Climate change 2014: impacts, adaptation, and vulnerability. Part A: global and sectoral aspects. Contribution of working group II to the fifth assessment report of the inter-governmental panel on climate change*. Cambridge: Cambridge University Press; p. 361–409.
- Wöppelmann G, Marcos M. 2016. Vertical land motion as a key to understanding sea level change and variability. *Rev Geophys*. 54:64–92.

### **Section 3.2: Using CMEMS satellite and model data to help assess eutrophication status in Northwest European Shelf Seas.**

- Báez JC, Real R, López-Rodas V, Costas E, Enrique Salvo A, García-Soto C, Flores-Moya A. 2014. The North Atlantic oscillation and the Arctic oscillation favour harmful algal blooms in SW Europe. *Harmful Algae*. 39:121–126. DOI:10.1016/j.hal.2014.07.008.
- Best MA, Wither AW, Coates S. 2007. Dissolved oxygen as a physico-chemical supporting element in the water framework directive. *Mar Pollut Bull*. 55(1–6):53–64. DOI:10.1016/j.marpolbul.2006.08.037.
- Butenschön M, Clark J, Aldridge JN, Allen JI, Artioli Y, Blackford J, Bruggeman J, Cazenave P, Ciavatta S, Kay S, et al. 2016. ERSEM 15.06: a generic model for marine biogeochemistry and the ecosystem dynamics of the lower trophic levels. *Geosci Model Dev*. 9:1293–1339. DOI:10.5194/gmd-9-1293-2016.
- Ciavatta S, Kay S, Saux-Picart S, Butenschön M, Allen JI. 2016. Decadal reanalysis of biogeochemical indicators and fluxes in the North West European Shelf-Sea ecosystem. *J Geophys Res Oceans*. 121(3):1824–1845. DOI:10.1002/2015JC011496.
- Ferreira JG, Andersen JH, Borja A, Bricker SB, Camp J, da Silva MC, Garcés E, Heiskanen AS, Humborg C, Ignatiades L, Lancelot C. 2011. Overview of eutrophication indicators to assess environmental status within the European marine strategy framework Directive. *Estuarine Coastal Shelf Sci*. 93(2):117–131. DOI:10.1016/j.ecss.2011.03.014.
- Glibert PM, Icarus Allen J, Artioli Y, Beusen A, Bouwman L, Harle J, Holmes R, Holt J. 2014. Vulnerability of coastal ecosystems to changes in harmful algal bloom distribution in response to climate change: projections based on model analysis. *Glb Chg Bio*. 20(12):3845–3858. DOI:10.1111/gcb.12662.
- Gohin F, Van der Zande D, Tilstone GH, Eleveld MA, Lefebvre A, Andrieux-Loyer F, Blauw AN, Bryère P, Devreker D, Garnesson P, Fariñas TH. 2019. Twenty years of satellite and in situ observations of surface chlorophyll-*a* from the northern Bay of Biscay to the eastern English Channel. Is the water quality improving? *Remote Sens Environ*. 233:111343.
- Grizzetti B, Bouraoui F, Aloe A. 2012. Changes of nitrogen and phosphorus Loads to European seas. *Glb Chg Bio*. 1. DOI:10.1111/j.1365-2486.2011.02576.x.

- Große F, Greenwood N, Kreis M, Lenhart H-J, Machoczek D, Pätsch J, Salt L, Thomas H. 2016. Looking beyond stratification: a model-based analysis of the biological drivers of oxygen deficiency in the North Sea. *Biogeosciences*. 13 (8):2511–2535. DOI:10.5194/bg-13-2511-2016.
- Levin LA, Ekau W, Gooday AJ, Jorissen F, Middelburg JJ, Naqvi SWA, Neira C, Rabalais NN, Zhang J. 2009. Effects of natural and human-induced Hypoxia on coastal Benthos. *Biogeosciences*. 6(10):2063–2098. DOI:10.5194/bg-6-2063-2009.
- McQuatters-Gollop A, Raitos DE, Edwards M, Pradhan Y, Mee LD, Lavender SJ, Attrill MJ. 2007. A long-term chlorophyll data set reveals regime shift in North Sea phytoplankton biomass unconnected to nutrient trends. *Limnol Oceanogr*. 52:635–648.
- Novoa S, Chust T, Sagarminaga Y, Revilla M, Borja A, Franco J. 2012. Water quality assessment using satellite-derived chlorophyll-*a* within the European directives, in the south-eastern Bay of Biscay. *Mar Pollut Bull*. 64(4):739–750. DOI:10.1016/j.marpolbul.2012.01.020. ISSN 0025-326X.
- O’Dea E, Furner R, Wakelin S, Siddorn J, While J, Sykes P, King R, Holt J, Hewitt H. 2017. The CO5 configuration of the 7 km Atlantic margin model: large-scale biases and sensitivity to forcing, physics options and vertical resolution. *Geosci Model Dev*. 10:2947–2969. DOI:10.5194/gmd-10-2947-2017.
- OSPAR. 2008. Second OSPAR integrated report on the eutrophication status of the OSPAR maritime area. OSPAR publication 372.
- OSPAR. 2017. Third integrated report on the eutrophication status of the OSPAR maritime area. OSPAR Publication 694.
- Romero E, Garnier J, Lassaletta L, Billen G, Le Gendre R, Riou P, Cugier P. 2013. Large-scale patterns of river inputs in southwestern Europe: seasonal and interannual variations and potential eutrophication effects at the coastal zone. *Biogeochemistry*. 113 (1–3):481–505. DOI:10.1007/s10533-012-9778-0.
- Sathyendranath S, Brewin R, Brockmann C, Doerffer R, Farman A, Krasemann H, Mélin F, et al. 2016. OC-CCI: products and their use. Ocean colour CCI products report V2.
- Schaeffer BA, Hagy JD, Conmy RN, Lehrter JC, Stumpf RP. 2012. An approach to developing numeric water quality criteria for coastal waters using the SeaWiFS satellite data record. *Environ Sci Technol*. 46(2):916–922. DOI:10.1021/es2014105.
- Skákala J, Ford D, Brewin RJW, McEwan R, Kay S, Taylor B, Mora L, Ciavatta S. 2018. The assimilation of phytoplankton functional types for operational forecasting in the Northwest European Shelf. *J Geophys Res Oceans*. 123 (8):5230–5247. DOI:10.1029/2018JC014153.
- Tinker T, Renshaw R, Barciela R, Wood R. 2019. Regional mean time series for the Northwest European Shelf seas. In: Copernicus marine service ocean state report, issue 3. *J Operat Oceanogr*. 12(sup1):s26–s30. DOI: 10.1080/1755876X.2019.1633075.
- Topcu HD, Brockmann UH. 2015. Seasonal oxygen depletion in the North Sea, a review. *Mar Pollut Bull*. 99(1–2):5–27. DOI:10.1016/j.marpolbul.2015.06.021.
- van Beusekom JEE, Bot P, Carstensen J, Grage A, Kolbe K, Lenhart H-J, Pätsch J, Petenati T, Rick J. 2017. Eutrophication. In: Klopper S, Baptist MJ, Bostelmann A, Busch J, Buschbaum C, Gutow L, Janssen G, Jensen K, Jørgensen H, de Jong F, Lüerßen G, Schwarzer K, Stempel R, Thielges D, editor. Wadden Sea quality status report 2017. Wilhelmshaven: Common Wadden Sea Secretariat. <https://qsr.waddensea-worldheritage.org/>.
- Vaquer-Sunyer R, Duarte CM. 2008. Thresholds of hypoxia for marine biodiversity. *Proc Natl Acad Sci USA*. 105 (40):15452–15457. DOI:10.1073/pnas.0803833105.

### Section 3.3: The value of carbon sink sequestration ecosystem services in the Mediterranean Sea.

- Beaumont NJ, Austen MC, Atkins JP, Burdon D, Degraer S, Dentinho TP, Derous S, Holm P, Horton T, van Ierland E, et al. 2007. Identification, definition and quantification of goods and services provided by marine biodiversity: implications for the ecosystem approach. *Mar Pollut Bull*. 54(3):253–265.
- CICES V5.1. 2018. Common international classification of ecosystem services (CICES, v5.1). <http://www.cices.eu>.
- EUA. 2019. Primary market auction report. [Accessed 2019 April 10]. <https://www.eex.com/en/market-data/environmental-markets/auction-market/european-emission-allowance-s-auction/european-emission-allowances-auction-download>.
- Flanders Marine Institute. 2018. Maritime boundaries geodatabase: maritime boundaries and exclusive economic zones (200NM), version 10. <http://www.marineregions.org/doi:10.14284/312>.
- Gattuso J-PJ, Magnan A, Billé R, Cheung WWL, Howes EL, Joos F, Allemand D, Bopp L, Cooley SR, Eakin CM, et al. 2015. Contrasting futures for ocean and society from different anthropogenic CO<sub>2</sub> emissions scenarios. *Science*. 349 (6243):aac4722. DOI:10.1126/science.aac4722.
- IPCC. 2019. Summary for policymakers. In: Pörtner H-O, Roberts DC, Masson-Delmotte V, Zhai P, Tignor M, Poloczanska E, Mintenbeck K, Alegría A, Nicolai M, Okem A, Petzold J, Rama B, Weyer NM, editors. IPCC special report on the ocean and cryosphere in a changing climate. <https://www.ipcc.ch/srocc/cite-report/>.
- Le Quéré C, Andrew R, Friedlingstein P, Sitch S, Hauck J, Pongratz J, Pickers P, Ivar Korsbakken J, Peters G, Canadel J, et al. 2018. Global carbon budget 2018. *Earth Syst Sci Data*. 10:2141–2194. DOI:10.5194/essd-10-2141-2018.
- Liquete C, Piroddi C, Macías D, Druon J-N, Zulfian G. 2016. Ecosystem services sustainability in the Mediterranean Sea: assessment of status and trends using multiple modeling approaches. *Sci Rep*. 6:34162. DOI:10.1038/srep34162.
- MEA (Millennium Ecosystem Assessment). 2005. Ecosystems and human well-being. *Ecosystems*. DOI:10.1196/annals.1439.003.
- Melaku CD, Ghermandi A, Nunes PLD, Lazzari P, Cossarini G, Solidoro C. 2015. Estimating the value of carbon sequestration ecosystem services in the Mediterranean Sea: an ecological economics approach. *Glob Environ Change*. 32 (1):87–95.
- Nordhaus WD. 2017. Revisiting the social cost of carbon. *PNAS*. 114(7):1518–1523.
- Pendleton L, Donato DC, Murray BC, Crooks S, Jenkins WA, Sifleet S, Craft C, Fourqurean JW, Kauffman JB, Marbà N, et al. 2012. Estimating global ‘blue carbon’ emissions from conversion and degradation of vegetated coastal ecosystems. *Plos One*. 7(9):e43542. DOI:10.1371/journal.pone.0043542.

- Perruche C, Solidoro C, Cosssarini G. 2018. Air to sea carbon flux in Von Shuckmann et al., (2018). Copernicus marine service ocean state report, issue 2. *J Operat Oceanogr.* 11 (sup1):103–106.
- Pörtner HO, Karl DM, Boyd PW, Cheung WWL, Lluich-Cota SE, Nojiri Y, Schmidt DN, Zavialov PO. 2014. Ocean systems. In: Field CB, Barros VR, Dokken DJ, Mach KJ, Mastrandrea MD, Bilir TE, Chatterjee M, Ebi KL, Estrada YO, Genova RC, Girma B, Kissel ES, Levy AN, MacCracken S, Mastrandrea R, White LL, editors. *Climate change 2014: impacts, adaptation, and vulnerability. Part A: global and sectoral aspects. Contribution of working group II to the fifth assessment report of the intergovernmental panel on climate change.* Cambridge: Cambridge University Press; p. 411–484.
- Ricke K, Drouet L, Caldeira K, Tavoni M. 2018. Country-level social cost of carbon. *Nat Clim Change.* 8:895–900.
- Sabine CL, Feely RA, Gruber N, Key RM, Lee K, Bullister JL, Wanninkhof R, Wong CS, Wallace DWR, Tilbrook B, et al. 2004. The oceanic sink for anthropogenic CO<sub>2</sub>. *Science.* 305(5682):367–371.
- TEEB. 2010. *The economics of ecosystems and biodiversity ecological and economic foundations.* Pushpam Kumar, editor. London: Earthscan.
- Tol RJS. 2018. The economic impact of climate change. *Rev Environ Econ Policy.* 12(1):4–25.
- van den Bergh CJJM, Botzen WJW. 2014. A lower bound to the social cost of CO<sub>2</sub> emissions. *Nat Clim Change.* 4:253–258.
- Watkiss P, Anthoff D, Downing T, Hepburn C, Hope C, Hunt A, Tol R. 2005. *Social costs of carbon review – methodological approaches for using SCC estimates in policy assessment.* AEA Technology Environment, UK.
- Chapman RD, Shay LK, Graber HC, Edson JB, Karachintsev A, Trump CL, Ross DB. 1997. On the accuracy of HF radar surface current measurements: Intercomparisons with ship-based sensors. *J Geophys Res Oceans.* 102:18737–18748.
- Charria G, Lazure P, Le Cann B, Serpette A, Reverdin G, Louazel S, Batifoulier F, Dumas F, Pichon A, Morel Y. 2013. Surface layer circulation derived from Lagrangian drifters in the Bay of Biscay. *J Mar Syst.* 109–110:S60–S76.
- Cook TM, DePaolo T, Terrill EJ. 2007. Estimates of radial current error from high frequency radar using MUSIC for bearing determination. *OCEANS 2007, Vancouver, IEEE.* p. 1–6.
- Font J, Salat J, Tintore J. 1988. Permanent features of the circulation in the Catalan Sea. *Pelagic Mediterranean oceanography. Oceanol Acta.* 9:51–57.
- Frolov S, Paduan J, Cook M, Bellingham J. 2012. Improved statistical prediction of surface currents based on historic HF- radar observations. *Ocean Dyn.* 62(7):1111–1122.
- Halliwell GR, Srinivasan A, Kourafalou V, Yang H, Willey D, Hénaff M, Atlas R. 2014. Rigorous evaluation of a fraternal twin ocean OSSE system for the open Gulf of Mexico. *J Atmos Ocean Technol.* 31(1):105–130.
- Herbert G, Ayoub N, Marsaleix P, Lyard F. 2011. Signature of the coastal circulation variability in altimetric data in the southern Bay of Biscay during winter and fall 2004. *J Mar Syst.* 88(2):139–158.
- Hernández F, Blockley E, Brassington GB, Davidson F, Divakaran P, Drévillon M, Ishizaki S, Garcia-Sotillo M, Hogan PJ, Lagema P, et al. 2015. Recent progress in performance evaluations and near real-time assessment of operational ocean products. *J Operat Oceanogr.* 8(sup2): s221–s238.
- Hernández F, Melet A. 2016. *Product quality strategic plan in CMEMS (CMEMS-PORQUE-StrategicPlan).* Mercator Océan International, editor. Toulouse: Mercator Océan International.
- Hernández-Carrasco I, Orfila A, Rossi V, Garçon V. 2018. Effect of small-scale transport processes on phytoplankton distribution in coastal seas. *Sci Rep.* 8(1):8613.
- Hernández-Carrasco I, Solabarrieta L, Rubio A, Esnaola G, Reyes E, Orfila A. 2018. Impact of HF radar current gap-filling methodologies on the Lagrangian assessment of coastal dynamics. *Ocean Sci.* 14:827–847.
- Ivichev I, Hole LR, Karlin L, Wettre C, Röhrs J. 2012. Comparison of operational oil spill trajectory forecasts with surface drifter trajectories in the Barents Sea. *J Geol Geosci.* 1:105.
- Jiménez Madrid JA, García-Ladona E, Blanco-Meruelo B. 2016. Oil spill beaching probability for the Mediterranean Sea. In: Carpenter A, Kostianoy A, editors. *Oil pollution in the Mediterranean Sea: part I. The international context.* Cham: Springer International Publishing; p. 305–324.
- Juza M, Mourre B, Renault L, Gómara S, Sebastián K, Lora S, Beltran JP, Frontera B, Garau B, Troupin C, et al. 2016. SOCIB operational ocean forecasting system and multi-platform validation in the Western Mediterranean Sea. *J Operat Oceanogr.* 9(sup1):s155–s166.
- Kaplan DM, Lekien F. 2007. Spatial interpolation and filtering of surface current data based on open-boundary modal analysis. *J Geophys Res Oceans.* 112(C12):C12007.
- La Violette PE, Tintoré J, Font J. 1990. The surface circulation of the Balearic Sea. *J Geophys Res Oceans.* 95:1559–1568.

### **Section 3.4: IBISAR service for real-time data ranking in the IBI area for emergency responders and SAR operators.**

- Abascal AJ, Sanchez J, Chiri H, Ferrer MI, Cárdenas M, Gallego A, Castanedo S, Medina R, Alonso-Martirena A, Berx B, et al. 2017. Operational oil spill trajectory modelling using HF radar currents: a northwest European continental shelf case study. *Mar Pollut Bull.* 119(1):336–350.
- André G, Garreau P, Garnier V, Fraunié P. 2005. Modelled variability of the sea surface circulation in the North-Western Mediterranean Sea and in the Gulf of Lions. *Ocean Dyn.* 55:294–308.
- Álvarez FE, García SM, Pérez GB, Grifoll CM, Espino IM, Mestres RM, Cerralbo PP, Sánchez-Arcilla CA. 2018. The SAMOA project: downscaling operational oceanography for improving harbour operations. A: EuroGOOS International Conference. “Operational Oceanography serving Sustainable Marine Development: Proceedings of the Eight EuroGOOS International Conference: 3–5 October 2017, Bergen”. *European Global Ocean Observing System (EuroGOOS).* p. 379–386.
- Barrick D, Fernandez V, Ferrer MI, Whelan C, Breivik Ø. 2012. A short term predictive system for surface currents from a rapidly deployed coastal HF radar network. *Ocean Dyn.* 62(5):725–740.



- Lana A, Fernández V, Tintoré J. 2015. SOCIB continuous observations of Ibiza channel using HF radar. *Sea Technol.* 56(3):31–34.
- Lana A, Marmain J, Fernández V, Tintoré J, Orfila A. 2016. Wind influence on surface current variability in the Ibiza channel from HF radar. *Ocean Dyn.* 66(4):483–497.
- Le Cann B, Serpette A. 2009. Intense warm and saline upper ocean inflow in the southern Bay of Biscay in autumn–winter 2006–2007. *Cont Shelf Res.* 29(8):1014–1025.
- Le Traon PY, Alfatih A, Alvarez Fanjul A, Aouf L, Axell L, Aznar R, Ballarotta M, Behrens A, Benkiran M, Bentamy A, et al. 2017. The Copernicus marine environmental monitoring service: main scientific achievements and future prospects, in: #56. Mercator.
- Lekien F, Coulliette C, Bank R, Marsden J. 2004. Open-boundary modal analysis: interpolation, extrapolation, and filtering. *J Geophys Res Oceans.* 109:C12004.
- Liu Y, Weisberg RH. 2011. Evaluation of trajectory modeling in different dynamic regions using Normalized Cumulative Lagrangian Separation. *J Geophys Res Oceans.* 116(C9):C09013.
- Liu Y, Weisberg RH, Vignudelli S, Mitchum GT. 2014. Evaluation of altimetry-derived surface current products using Lagrangian drifter trajectories in the eastern Gulf of Mexico. *J Geophys Res Oceans.* 119(5):2827–2842.
- Mooers CNK, Zaron ED, Howard MK. 2012. Final report for phase I of Gulf of Mexico 3-D operational ocean forecast system pilot prediction project (GOMEX-PPP). U.S. Department of Energy.
- Mourre B, Aguiar E, Juza M, Hernández-Lasheras J, Reyes E, Heslop E, Escudier R, Cutolo E, Ruiz S, Mason E, et al. 2018. Assessment of high-resolution regional ocean prediction systems using multi-platform observations: illustrations in the Western Mediterranean Sea. In: Chassignet EP, Pascual A, Tintoré J, Verron J, editors. *New frontiers in operational oceanography*. GODAE Ocean View; p. 663–694. DOI:10.17125/gov2018.ch24.
- Orfila A, Molcard A, Sayol JM, Marmain J, Bellomo L, Quentin C, Barbin Y. 2015. Empirical forecasting of HF-radar velocity using genetic algorithms. *Trans Geosci Remote Sensing.* 53(05):2875–2886.
- Pinot JM, López-Jurado JL, Riera M. 2002. The CANALES experiment (1996–1998). Interannual, seasonal, and mesoscale variability of the circulation in the Balearic Channels. *Prog Oceanogr.* 55(3–4):335–370.
- Piraud I, Marseleix P, Auclair F. 2003. Tidal and thermohaline circulation in the Bay of Biscay. *Geophys Res.* 5:07058.
- Röhrs J, Christensen KH, Hole LR, Broström G, Drivdal M, Sundby S. 2012. Observation-based evaluation of surface wave effects on currents and trajectory forecasts. *Ocean Dyn.* 62(10):1519–1533.
- Rubio A, Caballero A, Orfila A, Hernández-Carrasco I, Ferrer L, González M, Solabarrieta L, Mader J. 2018. Eddy-induced cross-shelf export of high Chl-A coastal waters in the SE Bay of Biscay. *Remote Sens Environ.* 205:290–304. DOI:10.1016/j.rse.2017.10.037.
- Rubio A, Manso-Narvarte I, Caballero A, Corgnati L, Mantovani C, Reyes E, Griffa A, Mader A. 2019. The seasonal intensification of the slope Iberian Poleward current. In: *Copernicus marine service ocean state report, issue 3*. *J Oper Oceanogr.* 12:s26–s30.
- Sayol JM, Orfila A, Simarro G, Conti D, Renault L, Molcard A. 2014. A Lagrangian model for tracking surface spills and SAR operations in the ocean. *Environ Model Softw.* 52:74–82.
- Solabarrieta L, Frolov S, Cook M, Paduan J, Rubio A, González M, Mader J, Charria G. 2016. Skill assessment of HF radar-derived products for Lagrangian simulations in the Bay of Biscay. *J Atmos Ocean Technol.* 33(12):2585–2597.
- Solabarrieta L, Rubio A, Castanedo S, Medina R, Charria G, Hernández C. 2014. Surface water circulation patterns in the southeastern Bay of Biscay: new evidences from HF radar data. *Cont Shelf Res.* 74:60–76.
- Tintoré J, Vizoso G, Casas B, Heslop E, Pascual A, Orfila A, Ruiz S, Martínez-Ledesma M, Torner M, Cusi S, et al. 2013. SOCIB: the Balearic Islands observing and forecasting system responding to science, technology and society needs. *Mar Technol Soc J.* 47(1):101–117.
- Vilibić I, Šepić J, Mihanović H, Kalinić H, Cosoli S, Janeković I, Žagar N, Jesenko B, Tudor M, Dadić V, Ivanković D. 2016. Self-organizing maps-based ocean currents forecasting system. *Sci Rep.* 6:22924.
- Zelenke BC. 2005. An empirical statistical model relating winds and ocean surface currents: implications for short-term current forecasts [master's thesis]. Corvallis: Oregon State University.

### **Section 3.5: Surface picture of the Levantine Basin as derived by drifter and satellite data.**

- Amitai I, Lehahn Y, Lazar A, Heifetz E. 2010. Surface circulation of the eastern Mediterranean Levantine basin: insights from analyzing 14 years of satellite altimetry data. *J Geophys Res.* 115:C10058.
- Barnes DK, Galgani F, Thompson RC, Barlaz M. 2009. Accumulation and fragmentation of plastic debris in global environments. *Philos Trans R Soc B.* 364:1985–1998. DOI:10.1098/rstb.2008.0205.
- Brach L, Deixonne P, Bernard MF, Durand E, Desjean MC, Perez E, van Sebille E, Ter Halle A. 2018. Anticyclonic eddies increase accumulation of microplastic in the North Atlantic subtropical gyre. *Mar Poll Bull.* 126:191–196.
- Galgani F. 2014. Distribution, composition and abundance of marine litter in the Mediterranean and black seas. In: F Briand, editor. *CIESM workshop monograph 46: marine litter in the Mediterranean and black seas*. Monaco: CIESM Publisher; p. 23–30.
- Gertman I, Zodiatis G, Murashkovsky A, Hayes D, Brenner S. 2007. Determination of the locations of southeastern Levantine anticyclonic eddies from CTD data. *Rapp Commun Int Mer Mediterr.* 38:151.
- Gregory MR, Ryan PG. 1997. Pelagic plastics and other sea-borne persistent synthetic debris: a review of Southern Hemisphere perspectives. In: Coe JM, Rogers DB, editors. *Marine debris – sources, impacts and solutions*. New York: Springer-Verlag; p. 49–66.
- Hamad N, Millot C, Taupier-Letage I. 2005. A new hypothesis about the surface circulation in the eastern basin of the Mediterranean Sea. *Prog Oceanogr.* 66:287–298.
- Hamad N, Millot C, Taupier-Letage I. 2006. The surface circulation in the eastern basin of Mediterranean Sea. *Sci Mar.* 70(3):457–503.
- Le Vu B, Stegner A, Arsouze T. 2017. Angular momentum eddy detection and tracking algorithm (AMEDA) and its



- application to coastal eddy formation. *J Atmos Ocean Technol.* 35:739–761. DOI: [10.1175/JTECH-D-17-0010.1](https://doi.org/10.1175/JTECH-D-17-0010.1).
- Liubartseva S, Coppini G, Lecci R, Clementi E. 2018. Tracking plastics in the Mediterranean: 2D Lagrangian model. *Mar Pollut Bull.* 129:151–162.
- Mansui J, Molcard A, Ourmieres Y. 2015. Modelling the transport and accumulation of floating marine debris in the Mediterranean basin. *Mar Pollut Bull.* 91:249–257.
- Mauri E, Sitz L, Gerin R, Poulain P-M, Hayes D, Gildor H. 2019. On the variability of the circulation and water mass properties in the eastern Levantine Sea between September 2016–August 2017. *Water.* 11:1741. DOI: [10.3390/w11091741](https://doi.org/10.3390/w11091741).
- Menna M, Gerin R, Bussani A, Poulain PM. 2017. The OGS Mediterranean drifter database: 1986–2016, Technical report 2017/92 Sez. OCE 28 MAOS, 2017.
- Menna M, Poulain PM, Bussani A, Gerin R. 2018. Detecting the drogue presence of SVP drifters from wind slippage in the Mediterranean Sea. *Measurement.* 125:447–453. DOI: [10.1016/j.measurement.2018.05.022](https://doi.org/10.1016/j.measurement.2018.05.022).
- Menna M, Poulain PM, Zodiatis G, Gertman I. 2012. On the surface circulation of the Levantine sub-basin derived from Lagrangian drifters and satellite altimetry data. *Deep Sea Res I.* 65:46–58.
- Millot C, Gerin R. 2010. The mid-Mediterranean Jet Artefact. *Geophys Res Lett.* 37:L12602.
- Millot C, Taupier-Letage I. 2005. Circulation in the Mediterranean Sea. *Handb Environ Chem.* 5:29–66.
- Pinardi N, Zavatarelli M, Adani M, Coppini G, Fratianni C, Oddo P, Simoncelli S, Tonani M, Lyubartsev V, Dobricic S, Bonaduce A. 2015. Mediterranean Sea large-scale low-frequency ocean variability and water mass formation rates from 1987 to 2007: a retrospective analysis. *Prog Ocean.* 132:318–332. DOI: [10.1016/j.pocean.2013.11.003](https://doi.org/10.1016/j.pocean.2013.11.003). ISSN 0079-6611.
- Poulain PM, Menna M, Mauri E. 2012. Surface geostrophic circulation of the Mediterranean Sea derived from drifter and satellite altimeter data. *J Phys Ocean.* 42(6):973–990. DOI: [10.1175/JPO-D-11-0159.1](https://doi.org/10.1175/JPO-D-11-0159.1).
- Schroeder K, Garcia-Lafuente J, Josey SA, Artale V, Buongiorno Nardelli B, Carrillo A, Gacic M, Gasparini GP, Herrmann M, Lionello P, et al. 2012. Circulation of the Mediterranean Sea and its variability. In: Lionello P, editor. *Climate of the Mediterranean region – from the past the future.* Elsevier; p. 187–256. <https://www.sciencedirect.com/book/9780124160422/the-climate-of-the-mediterranean-region#book-description>.
- Suaria G, Aliani S. 2014. Floating debris in the Mediterranean Sea. *Mar Pollut Bull.* 86:494–504. DOI: [10.1016/j.marpolbul.2014.06.025](https://doi.org/10.1016/j.marpolbul.2014.06.025).
- Suaria G, Avio CG, Mineo A, Lattin GL, Magaldi MG, Belmonte G, Moore CJ, Regoli F, Aliani S. 2016. The Mediterranean plastic soup: synthetic polymers in Mediterranean surface waters. *Sci Rep.* 6:37551.
- Zambianchi E, Trani M, Falco P. 2017. Lagrangian transport of marine litter in the Mediterranean Sea. *Front Mar Sci.* 5:5.
- Zodiatis G, Lardner R, Lascaratos A, Georgiou G, Korres G, Syrimis M. 2003. High resolution nested model for Cyprus, NE Levantine basin, eastern Mediterranean Sea: implementation and climatological runs. *Ann Geophys.* 21:221–236.