



## **OpenDrift - an open source framework for ocean trajectory modeling**

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We will present a new, open source tool for modeling the trajectories and fate of particles or substances (Lagrangian Elements) drifting in the ocean, or even in the atmosphere. The software is named OpenDrift, and has been developed at Norwegian Meteorological Institute in cooperation with Institute of Marine Research. OpenDrift is a generic framework written in Python, and is openly available at <https://github.com/knutfrode/opendrift/>.

The framework is modular with respect to three aspects: (1) obtaining input data, (2) the transport/morphological processes, and (3) exporting of results to file. Modularity is achieved through well defined interfaces between components, and use of a consistent vocabulary (CF conventions) for naming of variables. Modular input implies that it is not necessary to preprocess input data (e.g. currents, wind and waves from Eulerian models) to a particular file format. Instead "reader modules" can be written/used to obtain data directly from any original source, including files or through web based protocols (e.g. OPeNDAP/Thredds). Modularity of processes implies that a model developer may focus on the geophysical processes relevant for the application of interest, without needing to consider technical tasks such as reading, reprojecting, and collocating input data, rotation and scaling of vectors and model output.

We will show a few example applications of using OpenDrift for predicting drifters, oil spills, and search and rescue objects.