Overwater Platform Integration & Shoreline Fumigation Scoping Study

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Abstract

For sources offshore and sources in close proximity to the shoreline there is a desire to replace the Offshore and Coastal Dispersion (OCD) Model with the American Meteorological Society (AMS) and Environmental Protection Agency (EPA) Regulatory Model (AERMOD). The main features lacking from AERMOD for these applications are downwash from offshore platforms and the treatment of shoreline fumigation during onshore flows. Funded by BOEM through an Interagency Agreement with EPA this study describes the integration of a platform downwash algorithm into AERMOD and provides an initial scoping study for incorporating coastal fumigation into AERMOD.

The OCD platform downwash algorithm was incorporated into AERMOD v22112 for all POINT source types. Model evaluation was conducted using measurements from two wind tunnel studies, which show increased ground-level concentrations due to platform downwash, but generally show model underprediction. These underpredictions are most likely caused by the simplistic inputs to the platform downwash algorithms. This initial platform downwash algorithm provides a basis for further testing, evaluation, and development within the AERMOD system.

The shoreline fumigation scoping study compared candidate model algorithms for inclusion into the AERMOD system. The study did not find a single "state-of-the-science" algorithm, but provided a succinct list of necessary features, model capabilities, and areas for further exploration.

Incorporation of the overwater platform downwash algorithm and initial exploration of shoreline fumigation for incorporation to the AERMOD model are significant steps toward replacement of OCD with AERMOD for sources located offshore and in close proximity to the shoreline.