

INCOIS - ONLINE OIL SPILL ADVISORY (OOSA)

Introduction

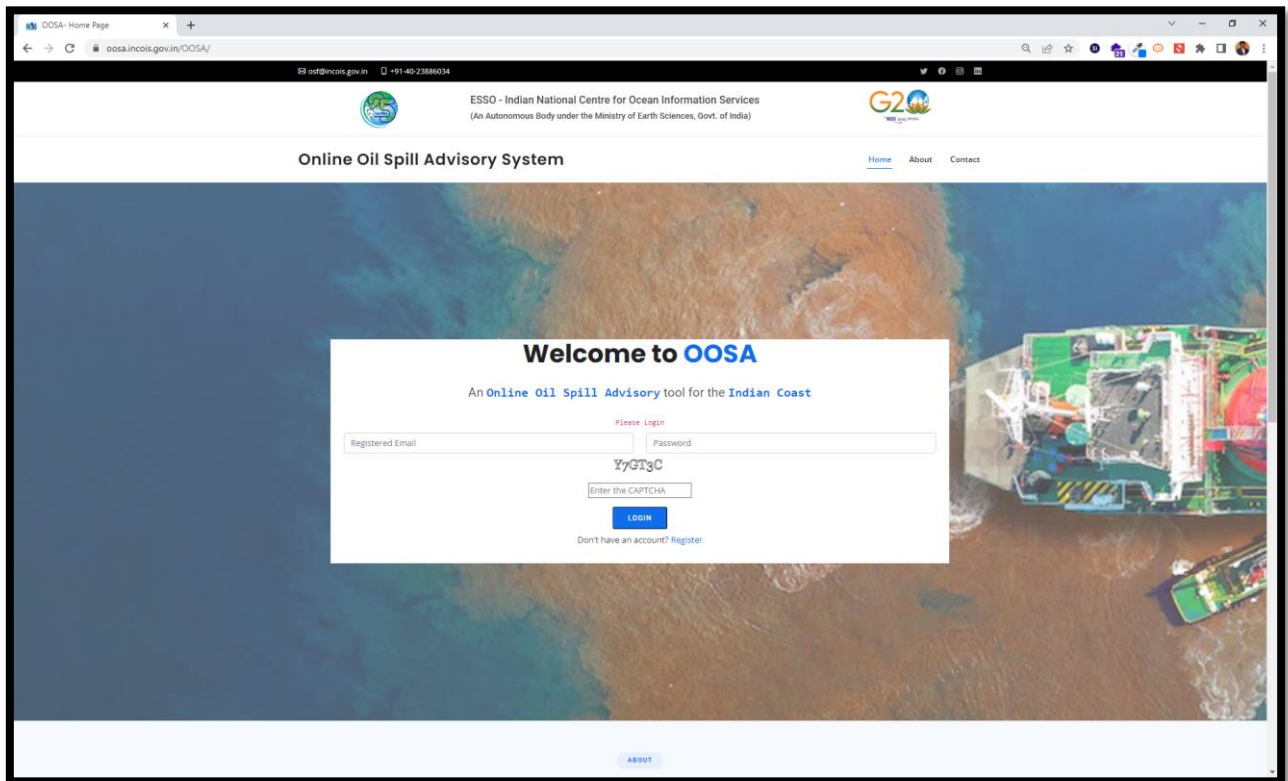
Online Oil spill Advisory System, a web portal, designed by INCOIS to issue Online oil spill trajectory prediction during the event of oil spills. This system will also eliminate the telephonic and fax traffic during the emergency situations in getting the advisory. India possessing sensitive ecosystems and aquatic organisms along its coastline of length 7517 km comprising estuaries, lagoons, mangroves, backwaters, salt marshes, mudflats, rocky shores and sandy structures. These marine habitats are being affected due to the oil spills caused due to vessel collisions and pipeline ruptures. Light fuels oils can cause mortality in 24-48 hours in red mangroves and black mangroves. Crude oils coat the prop roots and reduce the ability to exchange gases and Long term persistence cause leaf loss and lead to death. Coral reefs are the natural barriers that protect nearby shorelines from the eroding forces of the sea. They cover less than 1% of the Earth's surface, they are home to 25% of all marine fish species. Oil spill will affect the health of the larger reef community. Some of the more territorial fish will even remain in the area until death. In order to prevent the impact of oil spills on the ecosystem and on the aquatic organisms an oil spill trajectory prediction system is required. In the event of oil spill, the direction and movement of the oil will be predicted in advance in this system and will be disseminated to the users. The clean up and control measures will be planned and carried out accordingly.

INCOIS Oil spill trajectory prediction

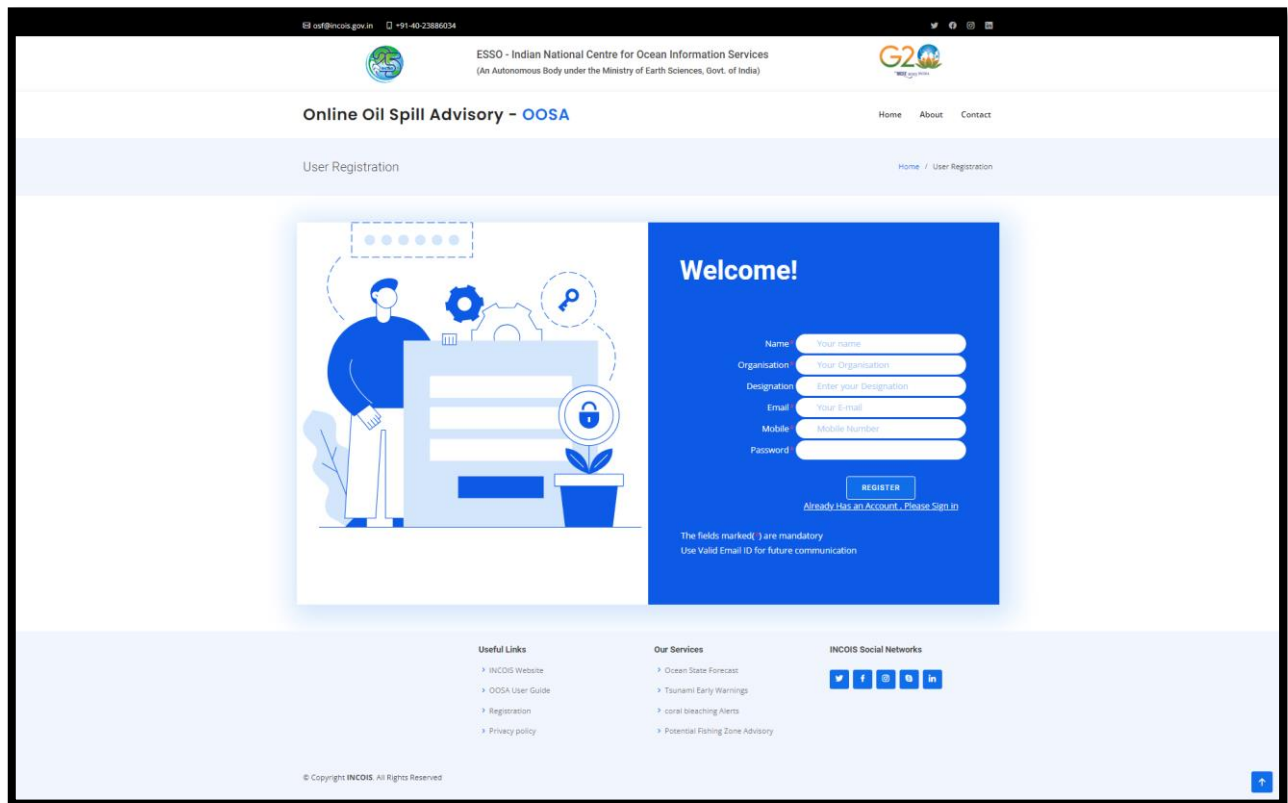
INCOIS oil spill trajectory prediction system is an integrated set up of oil spill trajectory model, General ocean circulation models, atmospheric models and Geographical Information System (GIS).The oil spill trajectory model is customised and set for Indian ocean domain. The ocean circulation patterns are obtained from INCOIS based high resolution Regional Ocean Modeling system, Hybrid co-ordinate ocean model and GODAS based Modular ocean models. The atmospheric fields are obtained from atmospheric models of ECMWF, NCMRWF and WRF. The resultant of the forcing on Euler's forward scheme yields the oil drift in spatio-temporal scale. The necessary details of the spill will be fed by the user to generate the predicted trajectory.

OOSA USER GUIDE

1. Home page (https://oosa.incois.gov.in)



2. Registration



Register yourself using the above form before doing the prediction

3. Inputs to the trajectory model

3.1 Select the type of Spill :

CONTINUOUS SPILLS

The difference between the start time and end time is the run duration and the computational time step is hourly. A cumulative release with an uniform flow rate is considered. If you require the trajectory only for an hour, then restrict the duration to one hour. if you require for a period, then enter the total quantity (say 100kg/hr X 4 hrs =400 kg for 4 hrs) of the pollutant. if the user want to vary the flow rate then different spills has to be run with different duration.

The screenshot displays the 'Online Oil Spill Advisory - OOSA' web application. The header includes the INCOIS logo and contact information. The main content area is titled 'New Oil Spill Event' and contains a 'USER INFORMATION' section with fields for Name (Padmanabham), Organisation (INCOIS), Email (padmanabham@incois.gov.in), and Mobile Number (9494491266). Below this is the 'OIL SPILL INFORMATION' section, which prompts the user to enter details for an oil spill trajectory forecast. Fields include Event id (OOSA20230628103332), Type of Spill (Continuous selected), Region of Spill (INDIAN OCEAN [60E - 100E, 00N - 25 N]), Start Date, End Date, Run duration (Hrs), Spill Point (Longitude: 84.1417, Latitude: 17.8545, DMS-DD), Pollutants, Quantity Released (500), and Purpose of Simulation. A 'Submit' button is located at the bottom of the form. The footer contains 'Useful Links', 'Our Services', and 'INCOIS Social Networks'.

INSTANTANEOUS SPILLS

An one time release happens and the drift will be continued until the duration of the run. Hence user can make use of this continuous and instantaneous spills. As the forecasted forgings are used, we encourage the users to make use of the forecast in a batch of 48 hours, Further layers will be added subjected to the loading compatibility

3.2 In the spill information, select your region of spill, within the limits mentioned.

Note : If you are not sure about the region of spill, Select Indian Ocean and give your inputs

3.3. If the spill is continuous, then select the Start/End date and time of the spill with the help of the mentioned format. If the spill is instantaneous, then select the start date and give the run duration in hours.

3.4 Enter the longitude/latitude in Decimal Degrees only. you can use the DMS-DD converter, if you have Degree, Minutes, Seconds.

3.5 Select the type of pollutant.

3.6 Enter the quantity released and its units. Ensure that you have entered all the information and click "submit."

4. Results/Output page

if you click on the spots, the position along with the date and time will be displayed.
if any error message is displayed, go back to home page, and give your inputs again.

