

## **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



The screenshot shows the OOSA (Online Oil Spill Advisory) website. At the top, there is a logo for OOSA on the left and INCOIS on the right. The main heading is "OOSA Online Oil Spill Advisory". Below this is a navigation bar with links: Home, About, Registration, and Contact Us. The "About OOSA" section is active, featuring an aerial image of an oil spill and a detailed description of the system. To the right, there is a "Login Here" section with input fields for Email and password, and buttons for Login and Sign-up. A "Forgot password?" link is also present. At the bottom, there is a copyright notice for ESSO- Indian National Centre for Ocean Information Services (INCOIS), Govt of India.

**OOSA**  
Online Oil Spill Advisory

Home About Registration Contact Us

**About OOSA**

ESSO- INCOIS developed an oil spill trajectory prediction system to advise the Indian Coast guard, the Regulatory authority, Oil spill responders and the coastal community involved in the clean up and control measures during the event of oil spill. The coastal sensitive ecosystems and the marine habitats are being affected by oil spills. This operational system will deliver the trajectory of the spilled oil immediately, which can enable the oil spill responders to plan their clean up activity. The impact of the oil spills on the environment can also be reduced by getting the direction and movement of the spilled oil in advance. The predicted trajectory for a maximum period of 96 hours is made available for the users. The generated trajectory can be downloaded as an animation file. It can also be viewed immediately in the WebGIS map, as the options available makes the user access easier.

**Login Here**

Email

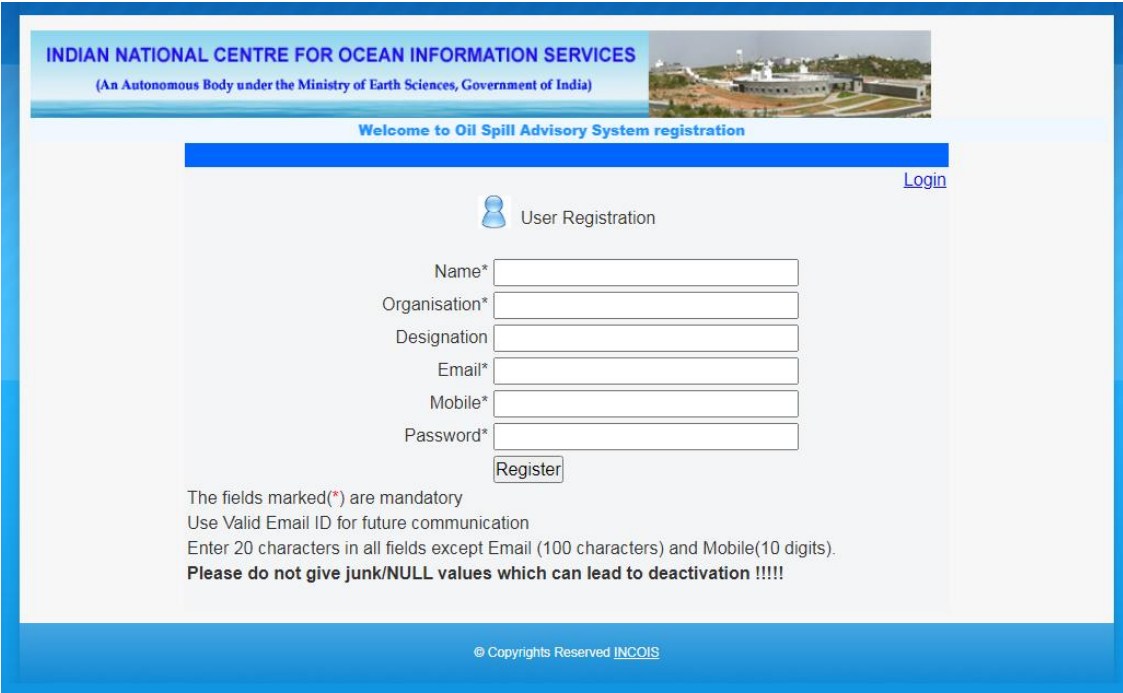
password

Login Sign-up

[Forgot password?](#)

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## 2. Registration



The screenshot shows the "User Registration" form on the INCOIS website. The header includes the INCOIS logo and name, followed by a welcome message for the Oil Spill Advisory System registration. The form has a "Login" link and a "User Registration" heading. The registration fields are: Name\*, Organisation\*, Designation, Email\*, Mobile\*, and Password\*. A "Register" button is at the bottom. Below the form, there are instructions: "The fields marked(\*) are mandatory", "Use Valid Email ID for future communication", "Enter 20 characters in all fields except Email (100 characters) and Mobile(10 digits).", and "Please do not give junk/NULL values which can lead to deactivation !!!!!". The footer contains the copyright notice for INCOIS.

**INDIAN NATIONAL CENTRE FOR OCEAN INFORMATION SERVICES**  
(An Autonomous Body under the Ministry of Earth Sciences, Government of India)

Welcome to Oil Spill Advisory System registration

[Login](#)

**User Registration**

Name\*

Organisation\*

Designation

Email\*

Mobile\*

Password\*

The fields marked(\*) are mandatory  
Use Valid Email ID for future communication  
Enter 20 characters in all fields except Email (100 characters) and Mobile(10 digits).  
**Please do not give junk/NULL values which can lead to deactivation !!!!!**

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Register yourself using the above form before doing the prediction

### 3. Inputs to the trajectory model

The screenshot shows the web interface of the ONLINE OIL SPILL ADVISORY (OOSA) system. At the top, there is a header for the INDIAN NATIONAL CENTRE FOR OCEAN INFORMATION SERVICES (INCOIS), an Autonomous Body under the Ministry of Earth Sciences, Government of India. Below the header is a navigation bar with links: INCOIS Home, User Manual, Publications, Feed Back, Contact Us, and Logout. The main content area is titled "ONLINE OIL SPILL ADVISORY (OOSA)". It contains two main sections: "USER INFORMATION" and "SPILL INFORMATION (Please refer user manual)". The "USER INFORMATION" section has input fields for Name, Organisation, Email, and Mobile No. The "SPILL INFORMATION" section has a "Type of Spill" section with radio buttons for "Continuous" (selected) and "Instantaneous". Below this is a "Region of Spill" dropdown menu set to "INDIAN OCEAN [60E - 100E, 00N - 25 N]". There are input fields for "Start Date" and "End Date", a "Run duration (Hrs)" input field, and "Spill Point (°E, °N)" coordinates with "Lon" (84.1417) and "Lat" (17.8545) fields. There is also a "DMS-DD" label. The "Pollutants" section has a "SELECT" dropdown menu. The "Quantity Released" section has an input field with "500" and a "Units" dropdown menu. A "Submit" button is at the bottom of the form. At the very bottom, there is a copyright notice: "© Copyrights Reserved, Disclaimer apply, INCOIS".

#### 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.

##### 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. Submission page

The screenshot shows the 'ONLINE OIL SPILL ADVISORY (OOSA)' web form. At the top, it identifies the 'INDIAN NATIONAL CENTRE FOR OCEAN INFORMATION SERVICES' as an autonomous body under the Ministry of Earth Sciences, Government of India. The form has a navigation bar with links: INCOIS Home, User Manual, Publications, Feed Back, Contact Us, and Logout. The main form is divided into two sections: 'USER INFORMATION' and 'SPILL INFORMATION (Please refer user manual)'. The 'USER INFORMATION' section includes fields for Name, Organisation, Email, and Mobile No. The 'SPILL INFORMATION' section includes: 'Type of Spill' (Continuous selected, Instantaneous unselected), 'Region of Spill' (INDIAN OCEAN [80E - 100E, 00N - 25 N]), 'Start Date' (12/28/2020 10:00:00), 'End Date' (12/31/2020 05:00:00), 'Run duration (Hrs)' (empty), 'Spill Point (°E, °N)' (Lon: 69.95404, Lat: 22.77646), 'Pollutants' (BUNKER), 'Quantity Released' (500), and 'Units' (METRICTONS). A 'Submit' button is at the bottom. A footer note states: '© Copyrights Reserved, Disclaimer apply, INCOIS'.

5. Results page

Your request will be processed and a message will be displayed as follows:

## OIL SPILL TRAJECTORY PREDICTION RESULTS

MODEL RUN INFORMATION		<a href="#">Logout</a>
Spill Type:	Continuous	
Start Date:	12/28/2020 10:00:00	
Start Longitude	69.95404	
Start Latitude	22.77646	
Pollutants	BUNKER	
Quantity Released	500 METRICTONS	
Trajectory Prediction for	67 Hours	

Your process is completed successfully

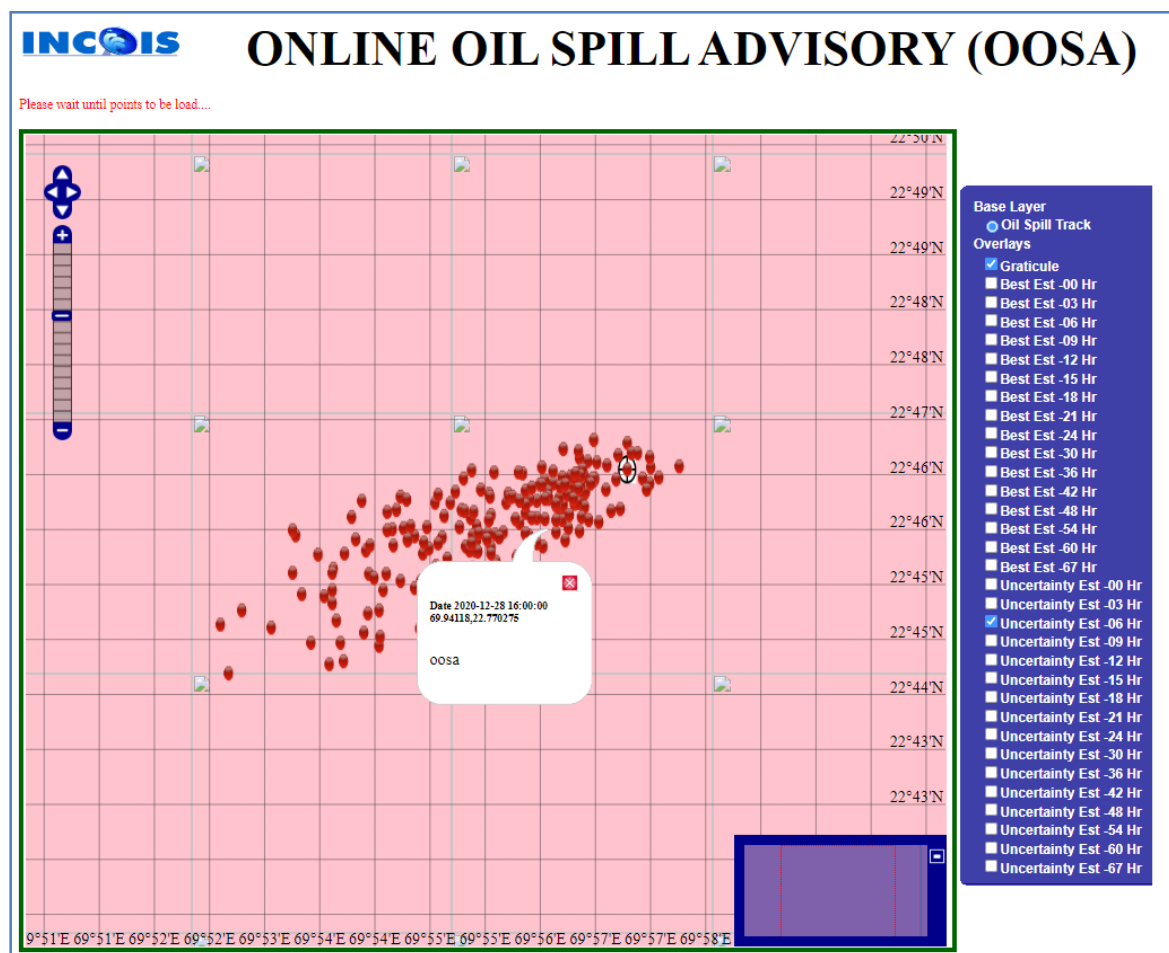
[Download Output](#)

[View output in Web Map](#)

[Back to OOSA Home](#)

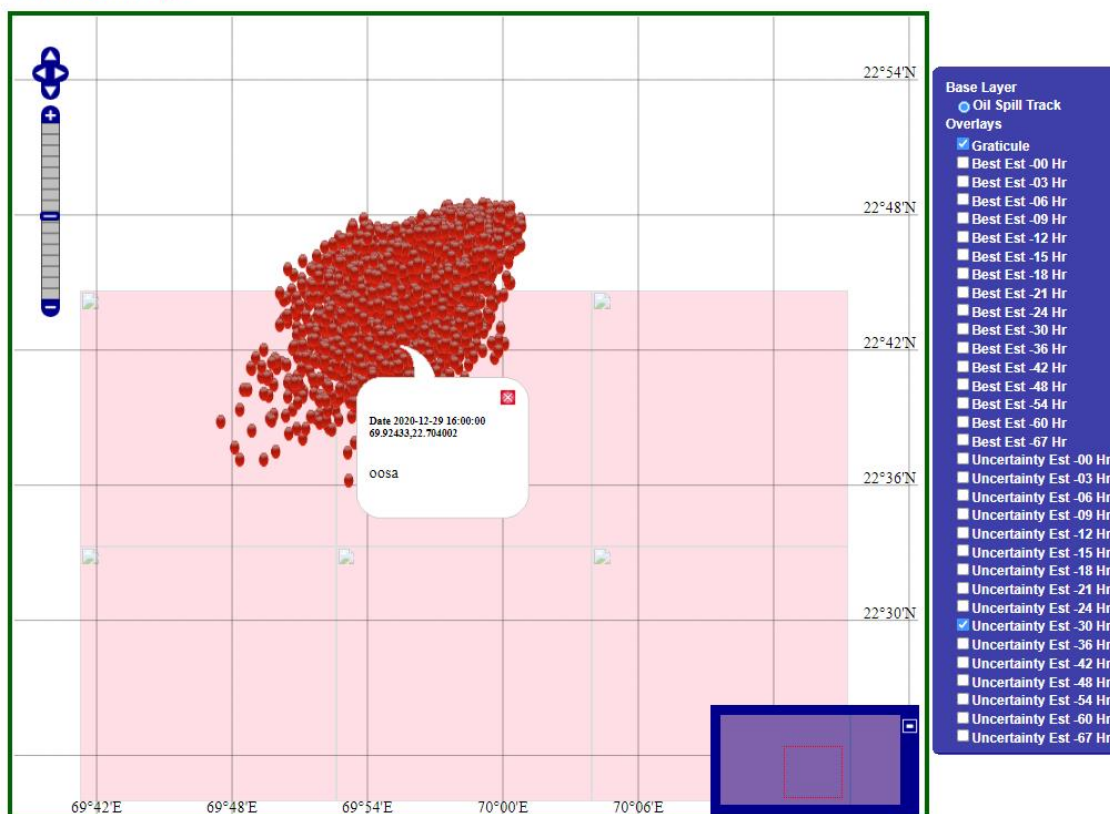
You can download the output/view output in web map

### 6. Output page



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

Please wait until points to be load...



Please give your feedback (at <http://www.incois.gov.in/portal/osf/feedback.jsp>) and comments, which will help us in improving the system.

in case of any query, write to [prasadsj@incois.gov.in](mailto:prasadsj@incois.gov.in)

Best Wishes ! Happy modelling !