

The Role of Satellite Images in the Information Toolbox

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Introduction

Satellite images are one of a number of surveillance methods available to collect information about an incident.

The aim of this paper is to present the Best Practice Guidelines for satellite remote sensing of oil spills at sea and how the derived information fits together with other observations in a Common Operating Picture (COP).

In following the guidelines responders can develop a workflow that allows the flow of information to be controlled and distributed in an orderly manner.

Main Results

To respond to an oil spill effectively, those involved in the response operations require accurate and timely information on the location, the quantity and characteristics of the oil spilled and the characteristics of the areas likely to be impacted by the spilled oil. This information enables the incident command to effectively determine the scale and nature of the oil spill scenario, make decisions on where and how to respond, control various response operations and, over time, confirm whether or not the response is effective.

Surveillance is key to providing this 'situational awareness' during an oil spill response operation. It is supported by a range of different technologies and techniques, from traditional and well-tested observation from vessels and aerial platforms to the use of innovative, small-scale unmanned aerial vehicles (UAVs).

Satellite remote sensing for oil spill response

Satellite remote sensing (SRS) is an additional surveillance tool that can be readily used to provide synoptic and strategic information to the response. Remote sensing is the acquisition of data about an object or phenomenon without making physical contact with it, often using electromagnetic radiation. Satellites, and the sensors onboard, can be used as remote sensing platforms to measure properties of the Earth from above the atmosphere and to gather data that can be used for a variety of applications.

For oil spill response, satellite imagery provides information that can be used to support various missions, including assessing the initial (and potential future) extent and impact of a spill, planning response operations and monitoring the effectiveness of the response as a whole.

To fulfill these roles, satellite remote sensing must meet various requirements of the response, including delivering information within certain timelines or at regular intervals. It must also be able to operate in a variety of environmental conditions, including during adverse weather.

Conclusions

The Best Practice Guidelines provide operational guidance in using satellite remote sensing within an oil spill response and distributing the information about the situation through a Common Operating Picture

- prepare a satellite image plan;
- establish the roles and responsibilities required during the response;
- follow and manage the acquisition of satellite imagery; and

- understand the advantages and limitations of satellite image technology.

References

IOPG/IPIECA Best Practice: Satellite remote sensing of oil spills at sea: Good practice guidelines for the application of satellite remote sensing during oil spill response operations.

Web address: http://www.oilspillresponseproject.org/wp-content/uploads/2017/01/Satellite_remote_sensing_2016.pdf

OGC Best Practice: IOGP/IPIECA Recommended Practice for a Common Operating Picture for Oil Spill Response

Web address: <http://www.opengeospatial.org/projects/initiatives/ogpoilspill>