

## **Study of Oil Pollution, Land-Based Pollution, Phytoplankton and Macro- Algal Blooms, and Coral Reef Degradation in the China Seas (OPAC)**

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This project has four objectives: Detection of 1) anthropogenic pollution of the sea, like oil pollution and land-based pollution, 2) phytoplankton blooms, and 3) macro-algal blooms in the Chinese Seas using space-borne synthetic aperture and optical/infrared images, and 4) monitoring the degradation of coral reefs in the South China Sea.

It is of great societal relevance since it addresses issues concerning the pollution of the sea that threatens marine life and affects aqua-farming (e.g., by harmful algae blooms) and fishery in the Chinese waters, and it addresses the status of coral reefs, which provide many vital ecosystem services.

It is innovative since its objective is to investigate under what conditions SAR can be used to monitor enhanced (and sometimes harmful) biological activity in the ocean. This requires a close cooperation of remote sensing scientists working with SAR and optical/infrared sensors. Furthermore, concerning the investigation of coral reefs, it is innovative, since it will use multi-sensor data to analyse the long-term evolution of coral reefs and the physical stresses causing their degradation.

## 中国海域的油污染、陆源污染、浮游植物和大型藻类 污染和珊瑚礁退化研究

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本计划主要有四个目标和方向：

- 1) 研究人类活动对海洋造成的污染，如油类污染和陆源污染；
- 2) 研究海洋浮游植物藻华；
- 3) 利用星载合成孔径雷达和光学、近红外影像对大型藻类藻华的监测；
- 4) 对南海海域珊瑚礁退化的监测。

我们的计划是致力于研究解决威胁海洋生物正常生存、影响中国海域的水产业（例如由有害赤潮引起的灾害）和渔业的正常发展的海洋污染，以及研究提供旺盛生态系统服务的海洋珊瑚礁生存状态，因此本计划具有较强的社会意义。

本计划的目标是探讨如何将合成孔径雷达（SAR）技术应用到海洋中正在增强（或者产生危害）的生物活动当中去，并通过利用多传感器数据来分析珊瑚礁的长期变化以及引起它们退化的物理应力方法来实现对珊瑚礁的调查研究，因而具有一定的创新性。