

(d) It strongly builds on and exploits the cross-fertilisation between research (Earth Explorer) and applications (Earth Watch type).

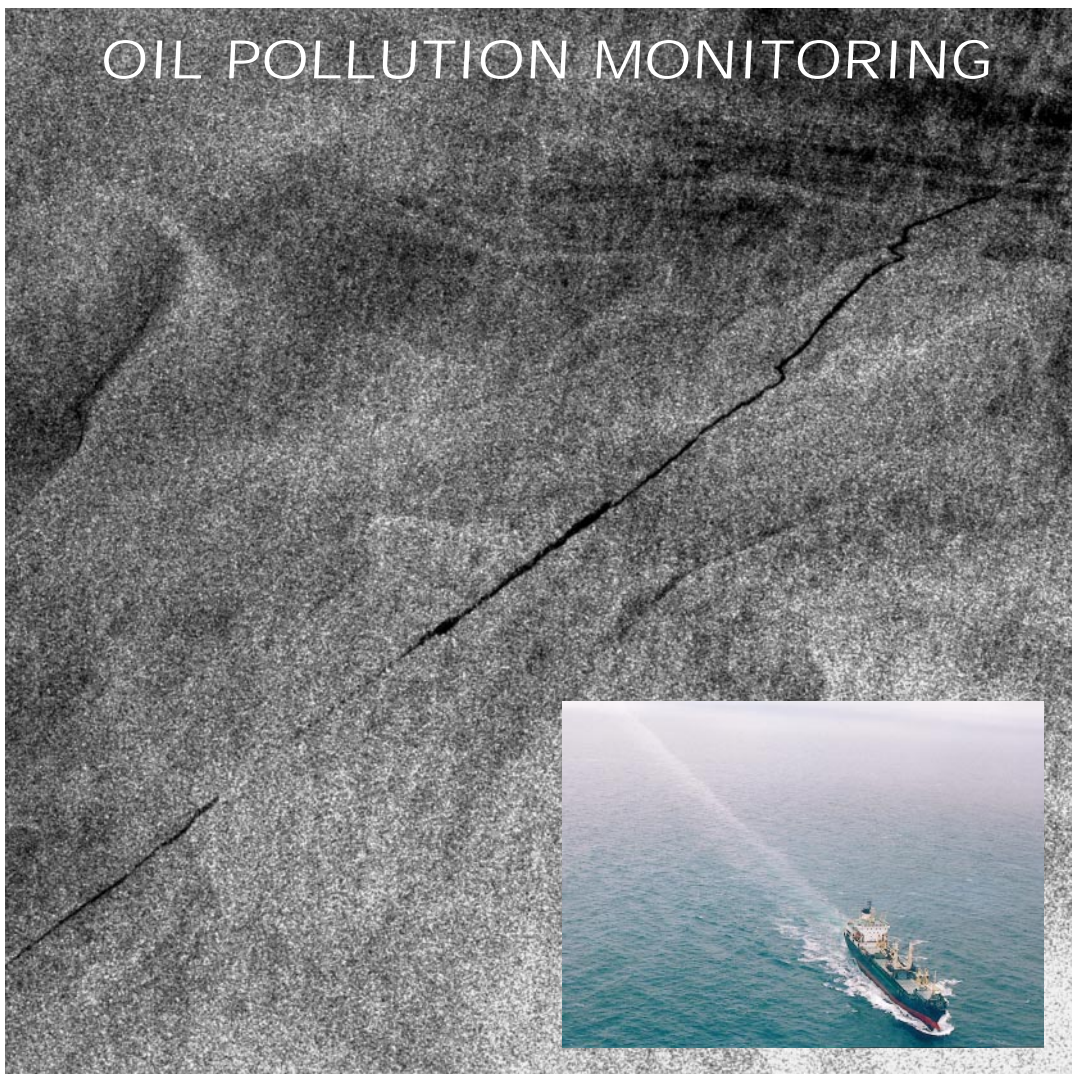
(e) It is user and market driven: all mission themes and partnership schemes are based on user proposals and market requirements, i.e. those of scientists, the European Commission, Eumetsat, other European and national entities, industry, etc.

The Programme is based on a reinforced coordination and cooperation between ESA, the European Commission and Eumetsat with the recognised role of ESA to concert and progressively integrate European-level EO activities in pursuance of the principles of Annex IV of the Convention. This cooperation is open for further widening to, for example, the ECMWF, EEA, etc. The programme is further based on reinforced coordination between ESA and Member States' EO strategies and programmes. It will also build on the proposed space-technology harmonisation, both within ESA and with other European and national entities.

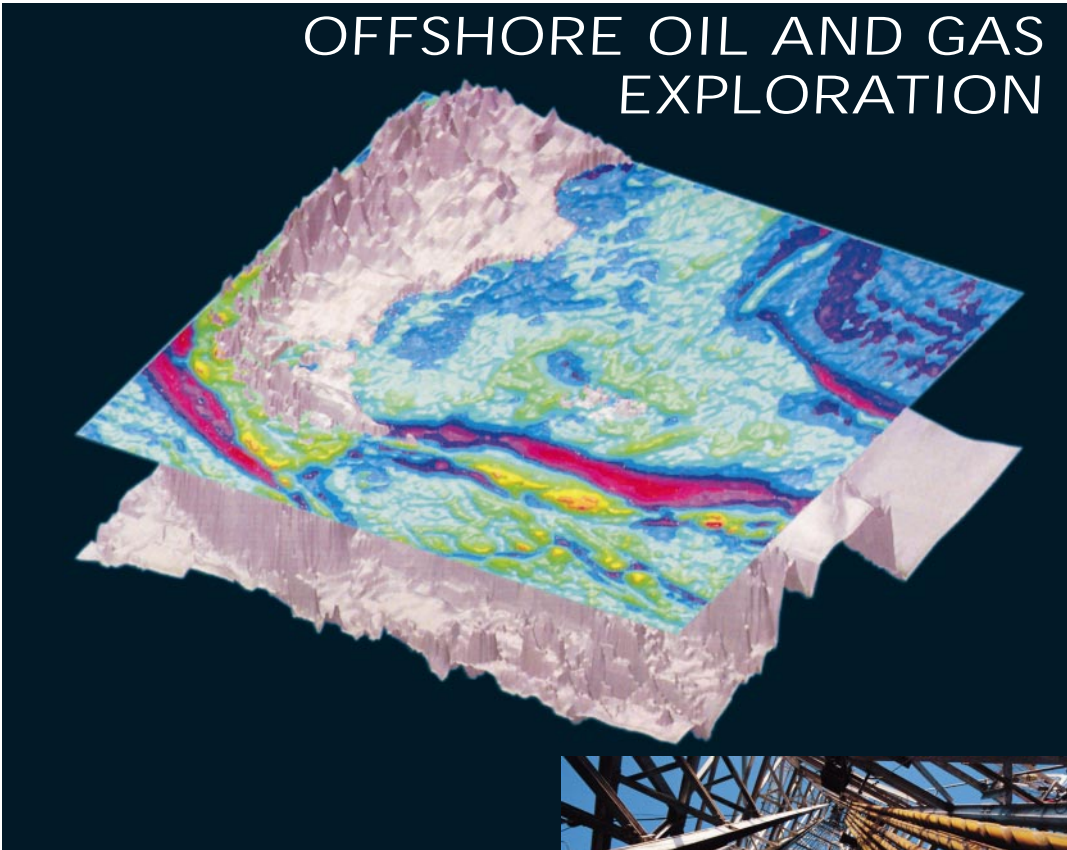
It demonstrates a new way of working with industry, both 'upstream' and 'downstream', including the industrial co-financing of Earth Watch type missions from the beginning of study activities, and stimulates industrial initiative and competitiveness through technology development and demonstration support and Earth Watch partnership schemes. It is orientated towards end-to-end applications systems, thus representing a large step from data provision (current) to market-oriented service provision (future).

It reduces complexity and administrative burdens and increases transparency through the gradual integration of currently seven individual optional EO programmes into a single EO Envelope Programme.

The Programme supports international cooperation on a global scale and maintains Europe's strong role in EO in the worldwide arena, including the necessary provisions for cooperation with Developing Countries.



OFFSHORE OIL AND GAS EXPLORATION



Earth Watch

The second major space element of the 'Living Planet' programme is Earth Watch. Earth Watches are directed at developing operational systems for monitoring the Earth, usually on a near-continuous basis, and represent the first steps by the Agency to effect the transition to service provision. The programme will be designed, from the start, to respond to user requirements and to develop a competitive and independent industry. An eventual phased withdrawal of ESA involvement, and indeed of all public R&D support, once a sustainable operational system is up and running, is a fundamental premise of this approach. Users, or their agents, must be involved closely with the development of each mission and a plan for how the service can sustain itself in the long run must be made at the start.

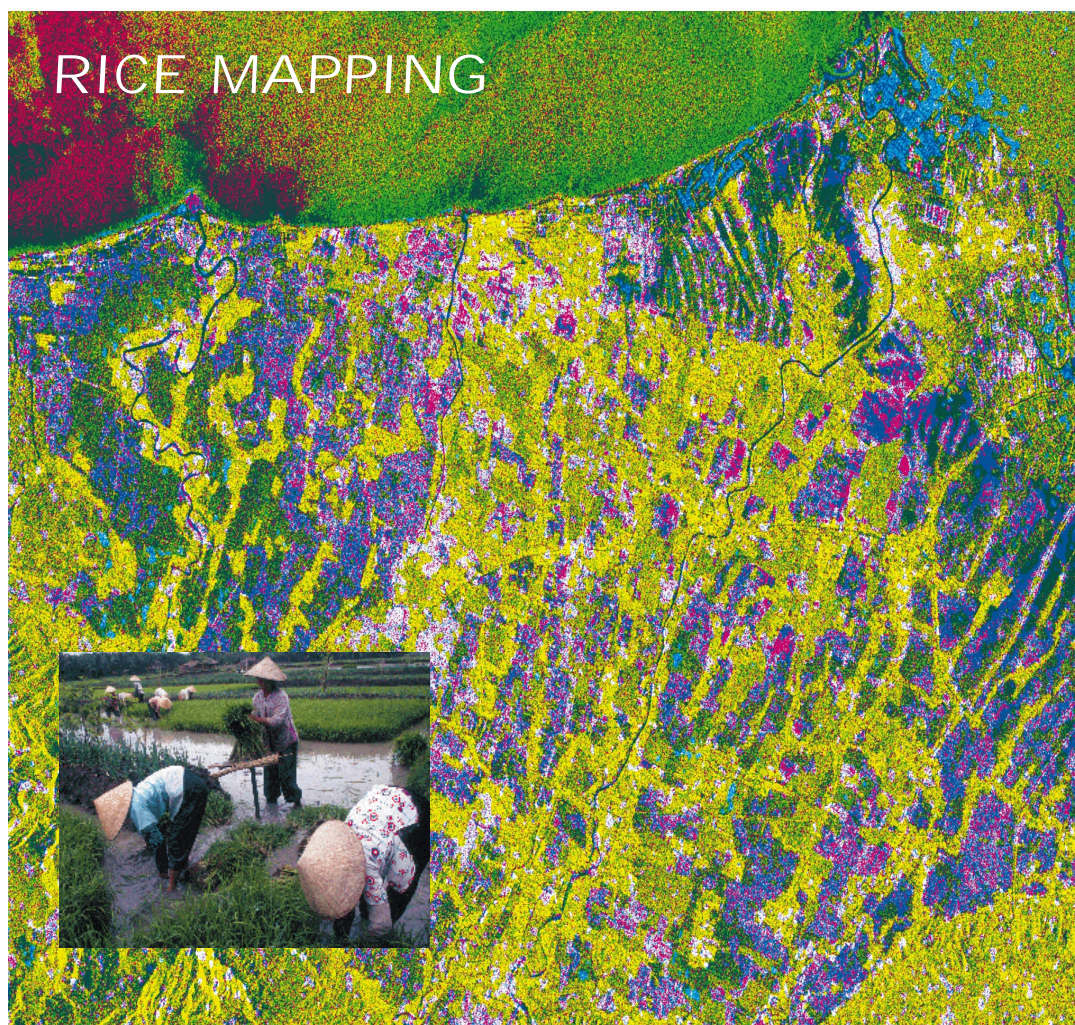
The Agency will only undertake Earth Watches in partnership. The partnerships will be with industry, commercial ventures, agencies (such as Eumetsat) or other public entities (such as the European Commission) who will provide an interface to users and market requirements. This partnership is the key, even in the feasibility-study phase.

Industry in Europe today is capable of fully implementing an Earth-Watch-type mission. ESA's development of Earth Watches must not get in the way of truly commercial activity that does not call on public funding.



The first steps to implementing the approach envisaged for the future were taken with the 'Call for Outline Mission Proposals for Earth Watch Partnership' issued in December 1997. Industry was invited to submit proposals for partnership with the Agency and potential user entities. A key element in the evaluation is to assess the self-standing operational capability as the end result. This process will be repeated in the future. The scale of the response to the first Call indicates that industry is ready to work in the new ways envisaged. A total of 20 industrial proposals have been received covering a wide range of applications, including high-resolution land monitoring (optical and SAR), coastal-zone monitoring, multi-spectral vegetation monitoring, atmospheric profiling and disaster monitoring.

Earth Watch partnerships, in which both risk and benefit are equitably shared, must be set up quickly; national involvements must match closely the industrial balance required to



implement the programme efficiently. Accordingly, risks, responsibilities, data rights and revenue sharing must be agreed in early planning.

It follows that for each Earth Watch mission, an individual approach will be adopted to data policy. The type of partners (public or private), the levels of commercial risk envisaged, and the level of investment required from ESA will determine the policy. The basic principle should be to let the entity having the responsibility for the exploitation of this mission and the distribution of the data set the policy. ESA, on behalf of Member State research and development interests, would normally expect the right of data use for non-conflicting objectives.

Next steps

Concrete programmatic decisions on the 'Living Planet' approach, and in particular on the Earth Observation Envelope Programme (EOEP), need to be taken at the next ESA Council Meeting at Ministerial Level. This will allow the EOEP activities to start in 1999. During a build-up phase, the activities currently covered by other approved ESA Earth Observation programmes will be gradually and smoothly integrated into the EOEP. The

Programme is planned to reach its steady-state level around 2004/2005. Concerning Earth Watch, it is envisaged to present the first dossier of an optional Earth Watch programme, based on the industrial responses to the ESA Call for Earth Watch Outline Mission Proposals, to ESA Member States in 1999 for decision and commencement of the industrial development activities.