

Space agency adopts user-led strategy...

[PARIS] The ruling council of the European Space Agency (ESA) last week adopted a new strategy that marks a significant shift in philosophy. Its top-down, bureaucratic organization is becoming more streamlined, geared to the needs of scientists, industry, government and other 'users'.

The strategic plan by the ruling council, made up of the heads of space agencies, will be tested later this year, when ministers from member states meet to decide whether to endorse the new directions, and to agree on funding for the proposed programmes. Sources in several states predict that the strategy will attract a broad consensus from space ministers, although funding for the science programme remains contentious.

The ministerial meeting was expected in June, but may be delayed because of the German general election in the autumn and because smaller member states are unhappy with the current lack of a firm commitment on science spending (see below).

The strategy bears the stamp of Antonio Rodotà, an industrialist who was appointed director general of ESA last year with the remit of reforming the agency. It has already

trimmed its 3,500 staff by a quarter over the past three years. The proposed changes reflect the general shift by member states, already evident from the last ministerial meeting in 1995 (see *Nature* 377, 667; 1995), away from prestige projects such as an independent manned space programme, towards more commercial and social goals.

UK science minister John Battle has strongly endorsed the new direction, in a marked departure from the hostility that has characterized Britain's attitude to ESA over much of the past decade.

"I've been stunned at the degree to which ESA has adopted what the UK and others have been saying," says one official at the British National Space Centre, cautioning that much work remains to be done in putting the new philosophy into practice.

The flagship of the approach is a proposed comprehensive programme in Earth observation. Its structure is based on ESA's science programmes, with participating member states required to approve overall funding for five years — around ECU 450 million annually — and ESA deciding how money should be allocated to proposals by users.



Making space pay: satellite images, such as this from ERS2, can help control pollution.

David Southwood — professor of physics at Imperial College, London, and currently on secondment to ESA to help develop the programme — calls this a "radically new way of doing business" and says the five-year funding will provide a stability that is lacking in the current approach, in which missions are approved one at a time. This has resulted in a lack of forward planning, says Southwood, who points out that ESA has no plans for observation satellites beyond Envisat, scheduled for launch in 1999. Budgetary stability should also facilitate collaboration with US and Japanese space agencies on long-term ventures. Global programmes to study major scientific challenges are already under discussion, he adds.

The programme will focus on jointly developing basic science and applications, with the launch of several science and technology demonstrators called Earth Explorers. The first four priority areas in this programme, headed by ESA's head of science Roger Bonnet, are atmospheric dynamics, the Earth's radiation budget, a gravity mission and a land surface hyperspectral. A series of optional Earthwatch missions will be conducted to develop commercial and public service applications.

The main challenge facing ESA is to make a smooth transition from technology demonstration to operational use, says Southwood, pointing out that Europe often lacks the mechanisms for using space data, such as ocean studies. Many feel that ESA should focus on research and development, while working closely with industry and the European Commission to transfer technologies when these are ready for exploitation.

ESA and the commission intend to sign an agreement outlining mechanisms to introduce Earth observation into agriculture, maritime and other sectors. Another goal will be to reduce duplication between national and European efforts, says Southwood. "Having got the programme rolling, a vital need is to work out how we make a European programme." **Declan Butler**

...but leaves question mark over science funding

[PARIS] Uncertainty is hanging over Europe's joint science space programmes. Members of the European Space Agency (ESA) are expected to demand cuts when ministers meet later this year to endorse a new space strategy.

ESA's ruling council reaffirmed support for the programme last week. But agreement on funding for Horizons 2000, ESA's dedicated basic science programme, over the next five years was conspicuously absent from its strategy.

"There is an issue in governments' minds about how important basic science is, how much it deserves," says one UK official.

Ministers seem unlikely to lift a cap on science spending, imposed two years ago at the United Kingdom's demand, that has cut the science budget by 9 per cent. Sweden and France are believed to share UK opposition to lifting this cap, while Germany and Spain

are said to want bigger cuts. Roger Bonnet, ESA head of science, says budgets are already strained to breaking point and any new cuts would seriously disrupt a series of science missions planned for the next decade. ESA's Science Programme Committee has already warned that Mars Express, a ECU150 million (US\$163 million) mission to Mars, will probably be cancelled unless the cap is lifted.

Bonnet has tried to reduce costs by delegating management to industry and using technologies from existing missions. He has oriented the agency's ECU300 million for 'medium-sized missions' towards smaller, flexible ones, including technology-testing missions (see *Nature* 385, 380; 1997). But such measures increase the risk, he adds.

One UK official argues that the cap has promoted cost-effectiveness. "There is no way ESA would have in the past proposed a mission

to Mars with a price tag as low as ECU150 million," he says. "Bonnet has gone three-fifths of the way, but still has some distance to go."

But David Southwood, professor of physics at Imperial College, London, and currently on secondment to ESA, says there is little scope for further economies and warns against the risk of "service degradation".

There are also fears that the total cost of programmes in the proposed ESA strategy (see above) is likely to exceed the annual budget of ECU2.5 billion. Leaving aside the prospect of cost overruns, ESA's contribution to the international space station will increase from ECU300 million now to ECU500 million in 2000, while the proposals contain plans to develop more powerful launchers based on the new Ariane 5 rocket. Bonnet warns that competing pressures on the budget mean science risks paying for any shortfall. **D. B.**