

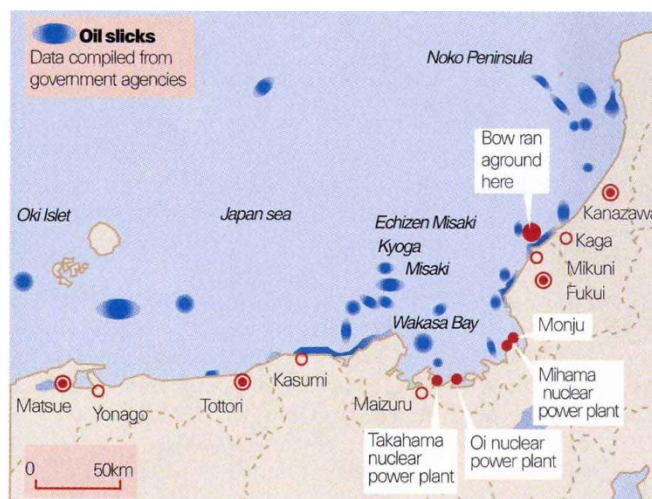
# Oil spill threatens Japanese nuclear plants

[TOKYO] Japan's worst-ever oil spill is threatening to shut down nuclear power plants along the coastline of the Japan Sea as large oil slicks approach the seawater intakes of the stations. The spill was caused when the Russian oil tanker *Nakhodka* broke in two 110 km off the Oki Islands during a storm on 2 January. Millions of litres of thick fuel oil have leaked from the tanker.

Russia has despatched an oil-cleaning ship from Sakhalin to help in the clean-up operation. But, as with previous disasters such as the Kobe earthquake, the central and local governments in Japan are attracting severe public criticism for their slowness to respond to the disaster. Most of the clean-up effort so far has been by local people and volunteers.

One half of the tanker sank in waters 1,700 metres deep and cannot be salvaged. The bow section washed up on the coast of Fukui Prefecture near the city of Kanazawa, and is being buffeted by high seas that are hampering salvage operations and attempts to contain the leaking fuel. Both sections still contain millions of litres of oil.

Small slicks have washed up at dozens of locations along the coast, and thousands of local people and volunteers from around Japan have been working frantically to clean



**Danger zone:** the strip of coastline 400 kilometres to the west of Tokyo that is currently threatened by oil slicks. The oil resulted from the breaking-up of a Russian tanker that was caught in a storm at the beginning of January. Large slicks are nearing Wakasa Bay, where several nuclear power plants are located.

up the spills with buckets and shovels. A pit has been prepared to temporarily hold 2.7 million litres of oil from the tanker which was carrying 19 million litres when it sank.

But clean-up operations at sea have been hampered by rough conditions, making it difficult for workers to fight slicks with oil-dispersing chemicals, oil mats and oil fences. A 300-metre-long fence set up around the bow section of the tanker by the Maritime Safety Agency was quickly torn apart by rough seas.

Large slicks more than 10 km across are approaching Wakasa Bay where there are several nuclear power plants, including the Monju fast-breeder reactor (see map). The water intakes of the plants are protected by oil fences. But it is doubtful whether they will be sufficient to keep the slicks at bay. If any oil were to enter the intakes, which suck in vast amounts of sea water, it could seriously damage the water-cooling systems for the turbines and lead to the close-down of the plants.

David Swinbanks

## Australia maintains commitment to joint research centres

[SYDNEY] Australia's conservative Coalition government, which came to power last March, has allocated its first funding to the country's Cooperative Research Centre (CRC) programme. The scheme was introduced by the former Labor government in 1990 in a bid to stimulate closer collaboration between universities, government research agencies and industry. Sixty-one centres have been funded since the start of the programme.

The latest funding round included the first scheduled reviews of 13 centres five years after their establishment. Each centre was seeking renewal of funding beyond its initial seven years. Out of 34 applications, 16 — made up of ten renewals, five new centres and one extension — were approved by Peter McGauran, science and technology minister, who last week allocated A\$218 million (US\$173 million) to the 16 centres over seven years.

This means that the government has preserved — in spite of budget restrictions — the overall level of annual funding established by its predecessor of around A\$145 million a year for the CRC programme.

The new centres will be established in the fields of Aboriginal and tropical health,

molecular plant breeding, sustainable rice production, sustainable tourism and the discovery of genes for common human ailments.

Two of the existing CRCs had decided not to reapply for funding, and three — tropical pest management, robust and adaptive (computer) systems, and plant science — failed to win renewed contracts.

The Plant Science CRC, established in Canberra jointly by the Australian National University and the division of plant industry of the Commonwealth Scientific and Industrial Research Organisation (CSIRO), had 27 industry associates, and support from industry had grown rapidly to more than one-third of its budget.

Jim Peacock, co-director of the centre, says it will reapply for government support, but this cannot be done until 1998 when current funding ceases. "While we are pressing ahead with the research projects which our industry partners want, the decision [not to renew the contract] is very disappointing and affects our continuity as we have to shed research staff."

Mark Sceats, director of the Photonics CRC and chairman of the body that represents all centre directors, points out that new research opportunities and jobs are

emerging from what he describes as a "beneficial change in research culture".

Sceats says that the closure of some centres and opening of others is "a natural, organic part of the CRC concept". But he expresses concern that the government has erected "very high barriers" to involvement by industries in the programme by asking for a seven-year commitment.

He believes that, with five-year reviews, CRCs are being expected to deliver results two to four times faster than the normal timescale of 10 to 20 years for "moving innovation from our universities and CSIRO through to products and services which generate economic benefits".

At the end of 1995, Labor's Innovation Statement made a commitment to three additional centres (see *Nature* 378, 653; 1995), but these appear to have been quietly dropped.

Total funding of the centres represents about 4 per cent of the Australian government's expenditure on research and development. On average, the value of contributions in cash or kind from academic, government and industry partners in an individual centre amounts to two or three times the government's cash support.

Peter Pockley