Soviet Far East

Not quite a closed area

THE Soviet Far East is not quite the military enclave, bristling with defence high-technology and totally off-limits to foreigners, suggested by reports of the tragedy of the Korean airliner KAL-007 three weeks ago. A letter to *The Times* of London from Professor D.J. Crisp, who reported a brush with the security authorities while examining shore-life with a magnifying glass on the coast near Nakhodka, shows that, at least occasionally, foreigners are allowed into the area. In fact, the Far East (which in Soviet terms stretches from the Bering Straits to Vladivostok), while highly sensitive, is not entirely "closed".

Joint ventures with Japan for exploring and exploiting the Sakhalin offshore oilfields do exist and, after long years of negotiation, there is a cooperation agreement for fishing the Sea of Ohkotsk. There are, moreover, occasional international scientific conferences in the region, on topics such as salmon breeding.

Science in the Soviet Far East has always been orientated towards regional development. The area has valuable fossil fuel, minerals (including precious metals) and marine resources, and the need to coordinate research has been apparent since the late 1960s. In 1970, existing institutes and stations of the Soviet Academy of Sciences in Vladivostok, Magadan, Petropavlovsk-Kamchatskii, Khabarovsk-na-Amure and Yuzhno-Sakhalinsk were amalgamated into the academy's Far Eastern Science Centre, with special responsibility for training specialists and coordinating research.

This programme, for the most part, has been successful. Criticisms in the mid-1970s that its research programmes were fragmented and irrelevant seem mostly to have been due to internal academy politics. The centre concentrates on fish-breeding and marine biology, vulcanology (including the use of geothermal waters for district heating and greenhouses), the agricultural needs of the area (including the newly developed rice paddies), conservation (including regular censuses of the Ussuri tigers and the establishment of new beaver colonies on Kamchatka) and geology.

The centre operates several research vessels, including its flagship *Kallisto*, the *Professor Bogorov*, the *Morskoi Geofizik* and the submersible *Vulkanolog* for examining under-water volcanos. Its latest acquisition, the *Akademik Aleksandr Vinogradov*, arrived in Vladivostok last June from Riga, after a maiden voyage monitoring the ocean atmosphere and river–ocean interfaces, performing geological investigations of the Red Sea depression and participating in a joint Soviet–Vietnamese survey of the Mekong Delta.

Several research projects are of more than local significance. Apart from obviously "international" work done by the Yuzhno-Sakhalinsk satellite monitoring post, the Sakhalin weather centre supplies data to the world meteorological network. And the Kamchatka Vulcanology Institute has become the focus of union-wide studies of possible precursors of nucleic and amino acids in the ejecta of volcanos. Botanical surveys of the Kuriles have identified a number of medicinal plants with ginseng-type properties, in addition to *Eleutherococcus*, a relative of ginseng and a well-known product of the region, regularly used by Soviet cosmonauts.

Fisheries research, carried out jointly by the academy's Institute of Marine Biology and TINRO, the Pacific Fisheries and Oceanographic Institute, has made possible the acclimatization of Siberian salmon in the Baltic and Kamchatka crabs on the Soviet Arctic coast.

Not all research in the area, however, is entirely successful. The Far East, like the whole of the Soviet Union, suffers from delays and difficulties in implementing research results. In the mid-1970s, planners in the Khabarovsk *krai*, who had been equipped with computers and data-processing aids to planning, were found to be making little or no use of them. TINRO and the Far Eastern Science Centre have this year done considerable work on the rational planning of fishing in the area, have restored the herring shoals of the Sea of Okhotsk and recently launched an integrated salmon breeding and processing project that, according to Mikhail Spichak, deputy head of research of the Soviet Ministry of Fisheries, will virtually turn the whole of the Far East into one gigantic fish-farm. One new project, however, the encouragement of the fishing of issuri (Japanese sardine) in the Sea of Okhotsk, although based on the latest ichthyological and ecological research, has been let down by industry, which has failed to produce the necessary processing plants, so that the majority of the catch goes to waste. On the other hand, Lev Bocharev, head of the Applied Mathematics Laboratory of TINRO, admitted recently that the work of his laboratory, which models and forecasts the movement of fish shoals, at present produces only "greater knowledge and scientific calculations" rather than "actual results", which suggests that it is sometimes the scientists who lag behind the demands of production.

In agriculture, although much work has been done on selection and breeding of new strains suited to the climate and poor soil conditions, annual production figures show regular shortfalls. This is particularly serious in the case of soya beans: ten years ago, the Far East produced more than 95 per cent of the total Soviet output. In spite of several multidisciplinary conferences to discuss possible improvements, it has become increasingly apparent that the soil of the area is too poor to meet the planners' targets. Recently, therefore, the emphasis has changed. Instead of producing more beans, the agronomists in the area are acting as advisers to other areas of the Soviet Union where soya cultivation is being introduced.

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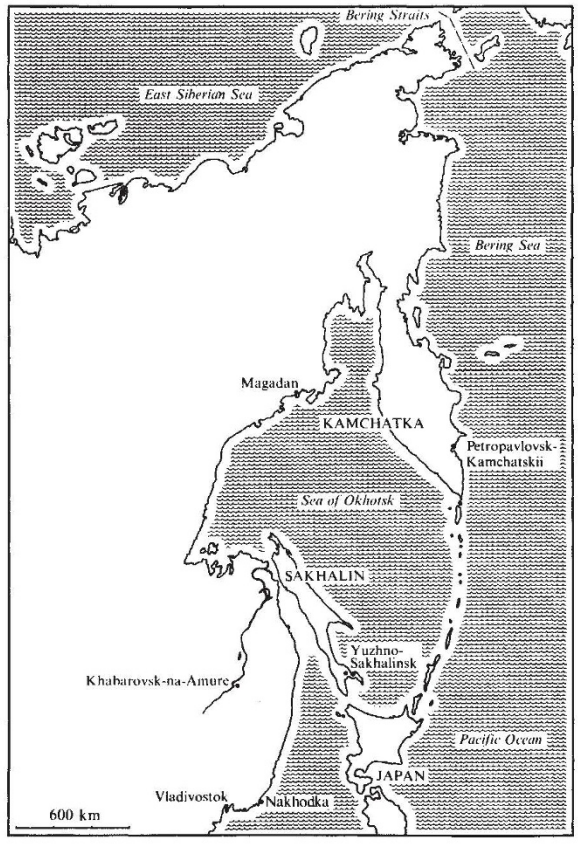

The Sea of Okhotsk — scene of the KAL-007 tragedy — contains important strategic installations, and non-allied foreigners are not encouraged to "paddle about in it", Pravda editor Viktor Afanas'ev said in London this week. But it is also a major growth area for Soviet non-military science.

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