

Sakharov

US academy
cancels visit

Washington

MOUNTING anxieties about the health of Dr Andrei Sakharov and his wife Yelena Bonner have forced the US National Academy of Sciences to postpone a planned visit to the Soviet Union next week. Dr Frank Press, president of the National Academy of Sciences, announced last month that he planned to deliver new proposals for resuming formal research links with the Soviet Academy of Sciences. The US academy decided to suspend the links in 1980 as a protest against a Soviet Government decision to condemn Dr Sakharov to internal exile in the town of Gor'kii, some 250 miles east of Moscow.

An academy spokesman said the visit was now in abeyance but the condition of the Sakharovs was being monitored daily. In a telegram sent jointly with the Royal Society of London, the Academie des Sciences de L'Institut de France and the Royal Swedish Academy of Sciences, the US academy at the end of May called on its Soviet counterpart to "act as effectively as possible to help Academician Sakharov and his wife in getting the health care they require and request".

The sudden crisis over the Sakharovs could hardly have come at a worse time for the academy, which had already come under criticism from some quarters for its decision to seek a resumption of ties with the Soviet academy. In an interview on 23 May, for example, Dr George Keyworth, President Reagan's science adviser, said he was "rather surprised" by the decision.

Dr Press has consistently refused to provide details of the proposals he would be taking to Moscow, but apparently hopes to revive the relationships that existed 20 years ago, when distinguished scientists from both countries took part in exchange programmes. Since the US and Soviet academies established a formal exchange programme 25 years ago, 500 scientists have travelled in each direction, but the volume of exchanges dwindled after the US academy declared a moratorium over the Sakharov affair. During 1983, there were a few individual exchanges; 26 Americans visited the Soviet Union for a total of 38 months while 13 Soviet scientists spent a total of 31 months in the United States.

Reaching a new agreement with the Soviet Union may prove difficult even if the political controversy surrounding the Sakharovs abates. Although the US academy is keen to resume links, it wants to change the way Soviet scientists are selected for visits to the United States. US scientists have often complained that under previous exchange agreements, too many junior scientists were being selected by the Soviet Union for visits to the United States.

Peter David

Star wars

Sceptical report from OTA

Washington

THE Reagan Administration has responded with unusual ferocity to a report by Congress's Office of Technology Assessment (OTA) that casts doubt on the ability of the United States to build a space-based "star wars" defence against nuclear attack. Lieutenant General James Abrahamson, former shuttle director and newly-appointed head of the star wars initiative, has told Congress that the report contains "technical errors, unsubstantiated assumptions and conclusions that are inconsistent with the body of the report".

The OTA study, published at the end of April, is the only detailed technical analysis of the star wars idea yet to be published by a neutral government body with full access to classified research data. Its author, Dr Ashton Carter of the Massachusetts Institute of Technology, concluded that the prospect of being able to develop a "near-perfect" defence against nuclear missiles was so remote that it should not form the basis of public policy.

Although they cleared the report for publication, a number of high-ranking defence officials have complained privately that it contained sensitive details of progress in research that should not have been disclosed. A Republican congressman, Henry Hyde of Illinois, has threatened to launch an enquiry into OTA's "alleged security breaches" and to propose legislation making semi-autonomous bodies like OTA "more accountable" in handling sensitive information.

OTA, however, dismisses the allegations of a possible breach of security. Dr Carter, a former DOD analyst specializing in anti-ballistic missile systems, maintains that the report discloses next to nothing about the current state of US research on any of the sensitive technologies. And in a point-by-point rebuttal of General Abrahamson's technical criticisms, OTA insisted last week that its report was technically correct.

Because they are hamstrung by secrecy requirements, neither side in the debate has been able to substantiate its technical criticisms and rebuttals. Much of General Abrahamson's report, for example, consists of simple assertions that OTA based its conclusions on outdated information and was therefore too pessimistic. In response, OTA has been able to say only that it is familiar with all the latest work and that its conclusions are fair.

One of the main technical quarrels is about the use of new fast-burn missiles which, OTA believes, might thwart a star wars defence because their rockets would burn out while they were still in the Earth's atmosphere. The administration's initiative stresses the importance of intercepting missiles during their boost phase, while they can be easily detected by their exhaust plume and before they deploy

their multiple warheads. Fast-burn boosters would be vulnerable for a much shorter time and the atmosphere would help to shield them from several futuristic weapons such as neutral particle beams and X-rays.

General Abrahamson, however, rejects OTA's view that the deployment of such boosters by the Soviet Union could prove a "potent, even decisive" countermeasure against directed energy weapons. It would, he says, take many years and a lot of money for the Soviet Union to deploy a large fraction of its arsenal on such boosters. Even then, their use would reduce the payload and accuracy of their missiles by between 70 and 90 per cent. OTA counters that "nothing like" a reduction of that magnitude would be necessary; it believes fast-burn boosters could be designed to deploy heavy payloads accurately enough to destroy US missile silos, and certainly cities.

OTA and DOD also disagree about how well lasers, X-rays and particle beams could perform as star weapons. General Abrahamson says OTA underestimates the effective range of chemical lasers and disregards promising (but secret) progress in the range of X-ray lasers and neutral particle beams and their ability to penetrate the atmosphere. According to the general, new advances enable a "modest" constellation of beam weapons to "negate most ballistic missile threats". And he dismisses OTA's argument that satellite battle stations and the other space-based paraphernalia of a star wars system would be extremely vulnerable to attack; he says a number of effective means have been developed to ensure that satellites could survive an attack.

General Abrahamson's response to OTA may well have been unusually sharp because it was published before it could be reviewed by the national laboratories most closely involved with star wars research. In subsequent reviews, the general claims, experts at the laboratories found the report full of technical flaws. Even this claim, however, is in dispute; Dr Carter says many scientists at the laboratories support OTA's conclusions.

Whatever its merits or defects, the report has made its mark in Congress. The House of Representatives' subcommittee on international security and scientific affairs cited it in a critical report last month on the administration's space arms control policy. The report said Congress had received no "conclusive" evidence that a perfect or near-perfect defence is technically feasible. It added: "As has been the practice between the superpowers in the nuclear age, the practice of each side developing a countermeasure to the other side's systems could continue unabated under the US and Soviet strategic defence programmes."

Peter David