being denounced as a spy. No charge has been filed, but, since August, someone has been leaking accusations about him to the Russian press. Levitus keeps a sheaf of these derogatory news articles in his office, clipped from sources like *Komsomolskaya Pravda* and *Kommersant*, with headlines such as: "Fool Levitus Is Caught While Spying" and "Is Syd Going to Do His Time?" The *Kommersant* article, for example, reports that "U.S. citizens were caught in Murmansk while trying to smuggle out a computer together with diskettes containing secret data [on] the Northern Russian Seas." Levitus, who insists he is no spy, regards the flap as absurd—except that it threatens to undermine a carefully nurtured data exchange program. The research sponsored by NOAA has been closed pending a technical inquiry by the Russians.

Levitus says his Arctic project is in limbo, awaiting the decision of a technical commission in Moscow that will soon decide whether the diskettes he was about to take home contained classified data. He is certain they held only temperature and salinity data from international waters, though he hadn't had a chance to review them. Meanwhile, the dozen or so 386-class IBM-type computers he provided to the Russians as part of the exchange have been sealed off by security police.

Whether these two episodes make up a pattern or not isn't clear. But what is clear is that there has been no public outcry over either one. So far, neither the scientists nor the U.S. government has made a public fuss about these incidents, because they would like to resolve the issues quietly and get these research projects back on track. As a result, few people—even among managers of U.S.-Russian research ventures—are aware that the KGB has shut down the Borovoye seismic program and the Murmansk ocean project. And when they do hear about the incidents, they regard them as accidents, or "outliers," as one official at the National Academy of Sciences put it.

Indeed, most scientific exchanges with the former Soviet Union have gone smoothly since the collapse of communism, but there are signs that the breakdown of the Soviet system may bring unpleasant surprises as well as opportunities. This risk is particularly high in projects that involve cross-boundary jurisdictions—as in Borovoye, where Soviet academicians used to run the research center as an elite Russian outfit on Kazakh turf with minimal recognition of Kazakh scientists. Both the seismologists and Levitus say they think Western researchers need to take extra precautions these days to be sure that they have touched all the bases before risking time and money on joint projects. Although the new republics may lack money, food, and other essentials, one thing they don't appear to lack is a passion for protocol.

—Eliot Marshall

MANNED SPACEFLIGHT

Europeans Look East for Cooperation

The European manned space program is dead....Long live the Euro-Russian manned space program! That's the message that emerged from the Paris headquarters of the European Space Agency (ESA) on 8 September, when delegates from the agency's 13 member nations met to ponder Europe's future in manned spaceflight. After months of trying unsuccessfully to shrink the troubled Hermes space plane project and shoehorn it into the agency's stretched budget, ESA director-general Jean-Marie Luton last week floated a plan that he believes just might allow Europe to build a reusable space vehicle early in the next century. If so, it will be because Russia has been pulled on board.

Luton is now calling for 3 years of "intensive studies" with the Russians into the feasibility of building a vehicle on the lines of Hermes. And that's not all. Under a plan agreed on with the Russian space agency, Luton is also proposing that ESA provide a payload of scientific experiments for Mir-2, slated for launch sometime after 1996, as the first step in a collaboration that could eventually lead to the launch of a Euro-Russian space station after 2005. Luton will take his plan to a meeting of Europe's space ministers that is scheduled to take place in Granada, Spain, in November.

If the ministers go along with ESA's grand vision of Euro-Russian collaboration, they would send mixed signals to NASA, which is now stressing international involvement in Space Station Freedom as one of its main selling points to Congress. Although Luton's plan would still permit ESA's main contribution to Freedom—a bolt-on laboratory called the Attached Pressurized Module—to be put into orbit on schedule in 1999, ESA is unlikely to be able to afford two major space station collaborations in the long term. It's far too early to say whether ESA would be prepared to throw its lot in with Moscow at the expense of its long-running collaboration with NASA, but collaboration with the Russians would have its attractions. As Luton's special adviser Jean-Jacques Dordain told *Science*: "We shall operate the vehicles. We shall be fully integrated."

First, however, Luton has to sell his proposal to his European colleagues. At least one aspect of the plan is likely to get a sympathetic hearing in Granada: the proposal to study the feasibility of building a Euro-Russian space plane. Doing so would effectively put Hermes on ice until 1995—a step that would please ESA's member states. Germany's science minister, Heinz Riesenhüber, for example, was adamant last fall that the brake had to be put on Hermes, which was then running 40% over budget and likely to cost more than $7.6 billion to complete. German officials have since made it clear that the twin burdens of recession and reunification mean they can't afford to go ahead even with a scaled-down unmanned version of Hermes (*Science*, 10 July, p. 151). And even the French, formerly Hermes' strongest supporters, are now counting their centimes and would be happy to sit through a 3-year hiatus. "We can accept such a strategy," one senior official at CNES, the French space agency, told *Science* last week.

The prospects for Luton's long-term vision are less clear, however. Many Western space agencies are currently trying to build links with the former Soviet space program, but given the economic chaos in the former Soviet Union, large-scale undertakings would be risky. Even ESA's Dordain acknowledges that, for the first few years of any Euro-Russian collaboration, ESA would have to pay directly for some of the work to be carried out in Russia. And the problems are not all on Russia's side: Some space policy experts doubt whether Western space agencies will be able to meet their side of any agreements with Moscow. John Logsdon of George Washington University, for instance, takes the cynical view that Luton's grand vision of a future Euro-Russian space station is merely "window dressing" to divert attention from the depressing fact that Europe's ambition to develop its own manned space program is dead.

A different interpretation of ESA's overtures to Moscow comes from Joan Johnson-Freese, a space policy researcher at the University of Central Florida, who thinks they reflect strains in the relationship with the United States. During Freedom's roller coaster ride through the U.S. Congress over the past 2 years, she says, "all of the space station partners have learned a very negative political lesson." But while the Europeans and Japanese are less than happy with the United States as the "dominant partner," Johnson-Freese says that they don't yet want to roll out of bed with NASA; they just want to broaden their options.

In any case, say many analysts, by the time that the ESA members have to make a decision on the next generation of manned space projects, they may not have to choose between the United States and Russia. By then, the costs are likely to be so great that the choice may be between a truly global collaboration, or nothing.

—Peter Aldhous