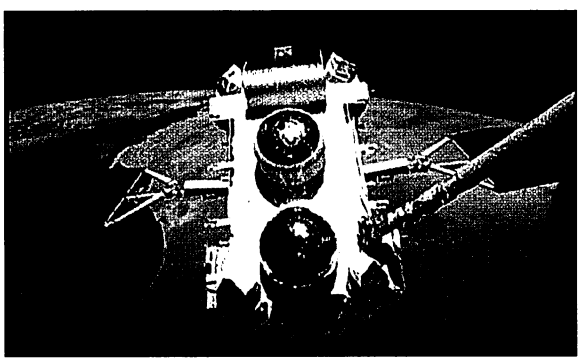
ASTRONOMY

Gamma Ray Satellite Faces Premature End

NASA may soon deliberately crash a fully operational scientific satellite into the ocean. The reason? If it doesn't send its highly successful Compton Gamma Ray Observatory (CGRO) into a directed suicidal dive through Earth's atmosphere, the mammoth satellite could later plummet in an uncontrolled reentry, posing a potential risk to populated areas.



Long way down. A failed gyroscope could doom the Compton Gamma Ray Observatory, shown being deployed in 1991.

CREDIT: NASA

NASA's painful dilemma arose in November, when one of the observatory's three onboard gyroscopes failed. These delicate instruments are used to precisely control the spacecraft's orientation. The gyro loss poses no threat to the scientific work of the observatory, says Charles Meegan of NASA's Marshall Space Flight Center in Huntsville, Alabama: "We could do science pretty well even if we lost another one."

But the satellite, which is as large as a truck and weighs 17 tons, needs at least two functioning gyroscopes to make a safe reentry once its mission is completed. (Each gyro controls movement along two of the three axes.) "You have to thread a very narrow needle," says Alan Bunner, the director of NASA's Structure and Evolution of the Universe program. If another gyro were to fail, NASA would run the risk of having some of the pieces crash into populated areas. As a result, NASA's Office of Space Science has proposed bringing the observatory down in mid-March, before it's too late.

Marshall's Gerald Fishman, the principal investigator of CGRO's Burst and Transient Source Experiment (BATSE), says he "never realized that the loss of one gyro would have such dire consequences." BATSE has been the spacecraft's star instrument ever since its launch in April 1991, providing astronomers with their first reliable clues on the true nature of gamma ray bursts, the most energetic explosions in the universe. Other CGRO instruments study exotic objects in the universe, like neutron stars, black holes, and active galaxies.

Engineers at NASA's Goddard Space Flight Center in Greenbelt, Maryland, which handles CGRO's communications systems, haven't given up. They are working hard to find a way to control the spacecraft with only two gyroscopes. If they succeed, CGRO is safe at least until a second gyro fails. According to a Goddard employee who requested anonymity, a solution is nearly at hand, but there may not be enough time to convince NASA headquarters. "We would need to develop completely new flight software," he says, "which normally would take us 6 months." And that may be too long to wait.

Another way to prevent CGRO from making an uncontrolled reentry in the near future would be to boost its orbit well beyond its current altitude of 500 kilometers. But even that's not good enough. Although at an altitude of 800 kilometers CGRO would stay in orbit for more than a century, Bunner says that international regulations "don't let us pose any risk to future generations." NASA has promised to make a decision by 16 February. **–GOVERT SCHILLING**

Govert Schilling writes from Utrecht, the Netherlands.

EUROPE

E.U. Grabs Food Safety by the Horns

From "mad cow disease" to dioxin-contaminated poultry, food safety has flared into one of the most divisive issues in the European Union (E.U.), the world's largest importer and exporter of food products. With no single agency responsible for establishing and enforcing food safety standards across the E.U.'s 15 member states, national governments—often backed by their own research labs and food agencies—are frequently at each other's throats. Take the current "beef war" between Britain and France over conflicting analyses of the threat posed by bovine spongiform encephalopathy (BSE): The European Commission recently had to resort to a lawsuit to try to force France to accept the advice of an E.U. scientific panel and lift its ban on British beef.

Last week, the commission proposed a slew of measures aimed at strengthening and harmonizing its scientific analyses of European food safety issues (see box). The centerpiece would be a new European Food Authority—a permanent scientific advisory body with its own reseach budget and scientific staff—and a scientific secretariat to coordinate advice from scientists who serve on E.U. advisory panels. The E.U.'s research commissioner, Philippe Busquin, told *Science* that the new Food Authority "should become the scientific point of reference for the whole E.U." on food safety issues.

KEY PROPOSALS

- **A "European Food Authority" to advise the commission, with its own research budget and a staff of several hundred scientists and others**
- **A larger "scientific secretariat" for the commission's science panels to help coordinate links to E.U. risk management officials**
- **A strengthened "rapid alert" system for food safety problems**
- **A system for rapid identification of scientific experts in the E.U. to help with food safety research**
- **Stronger links between the new Food Authority and national food safety and research agencies**

Health and Consumer Protection Commissioner David Byrne, who issued the proposals last week in the form of a white paper, contends that the proposed new authority—which must be approved by the European Parliament and the E.U.'s member nations—would establish "world-class food safety standards and systems" once it is in place, possibly in 2 years' time. Byrne sees the commission's current food safety advisory panels as "a core part" of the new organization, but it would have its own budget to commission "ad hoc and targeted research," in cooperation with the E.U.'s Joint Re-

search Centre and with scientific agencies in E.U. member nations.

Some European scientists are welcoming the recommendations, but others complain that the new authority would lack teeth: With no direct power to inspect suspect food shipments, punish violators of European food laws, or dictate policy to E.U. member nations, it would have nowhere near the clout of the U.S. Food and Drug Administration (FDA). Some are also disappointed that the proposed organization would play no role in public health policy. The E.U. has a drug-analysis lab—the European Medicines Evaluation Agency in London—but has no equivalent to either the FDA or the U.S. Centers for Disease Control and Prevention.

As public debate on food safety has raged over the past several years, the commission has struggled to beef up its authority. In 1997, the commission sought to insulate its scientific advisory panels on food safety from outside pressures—especially from industry—by moving them to the consumer directorate. But that shift solved only some of the problems, says physiologist Philip James, director of the Public Health Policy Group, a U.K. think tank, and a member of the commission's Scientific Steering Committee—an independent advisory panel that deals with multidisciplinary issues related to public health. "The commission's demands on scientists have at times been ridiculous, the remuneration for scientists has been too low, and the size of the 'scientific secretariat' support staff has been ludicrously small," he says. Indeed, the white paper itself says "The existing [scientific advice] system is handicapped by a lack of capacity, and has struggled to cope with the increase in the demands placed on it."

James and two other members of the steering panel—German toxicologist Fritz Kemper and French food safety expert Girard Pascal—last month issued a 74-page report criticizing the scientific advisory structure and suggesting the creation of a wider European authority that would cover both food safety and public health. They argued that the European public's confidence in scientific and government analyses "has declined because of a perceived bias toward political and industrial rather than consumer interests." Says Kemper, a Münster University professor who was a key player in developing the 1997 reforms: "We have to restore the confidence of European consumers, which was badly damaged by the BSE and other food safety debates." The new proposals are "a step toward improving the commission's scientific advice system on food safety—but it is only an initial step," says James. "Ideally, we would have a powerful agency like the FDA, but in Europe we have to do things one step at a time," adds Kemper.

But even this first step may be difficult. The European Parliament gave an initially tepid response to the white paper's proposals, and some consumer and food industry groups criticized the plan. David Barling, a researcher at the Centre for Food Policy in London, sees possible tension between the new E.U. Food Authority and the national food agencies that operate in eight of the 15 E.U. member nations. "There are some obvious fault lines," he says, including "the potential for future conflict when you create a European Food Authority at the same time that national food safety agencies are emerging."

–ROBERT KOENIG

EUROPEAN UNION

Getting Researchers to Pull Together

Like a fragmented empire of powerful fiefdoms, research in the European Union (E.U.) tends to be driven by the policies and leading laboratories of its 15 member nations rather than by any overarching vision across the whole community. Although that landscape is unlikely to change significantly anytime soon, the E.U.'s new research commissioner, Philippe Busquin, this week proposed steps to make the borders on the map of European research a bit less distinct.

Decrying the "fragmentation, isolation, and compartmentalization of national research efforts" in Europe, Busquin delivered a white paper policy statement on 18 January that outlined his concept for a "European Research Area." "There is no real research policy in Europe now, and the coordination of the member states' national policies and the European Commission is insufficient," says Busquin. "The research effort is often too little, too late, and too much centered on the national context—especially in comparison with our main competitors, the U.S. and Japan."

Cohesion needed. Philippe Busquin.

A significant part of Busquin's plan is the creation of a new "council of high representatives" from pan-European research centers such as the CERN particle physics lab, the European Molecular Biology Laboratory (EMBL), the European Space Agency, and the European Southern Observatory. These and other centers have a major influence on European research, but are run in-

CREDIT: KARIM IBOURKI PHOTO NEWS

ScienceScope

Booster Shot The Korea-based International Vaccine Institute (IVI) has received a 5-year, $40 million grant from The Bill and Melinda Gates Foundation to introduce vaccines for cholera, dysentery, and typhoid in six Asian countries. The money—for studies on topics such as disease prevalence and better vaccine delivery—is aimed at convincing policy-makers in the developing world that vaccines are a cost-effective way to improve public health.

"While the grant is large, it's small in terms of the job we face," says John Clemens, director of the 3-year-old IVI, which carries out collaborations with U.S. and European researchers and is building labs at Seoul National University. Focusing on Bangladesh, China, India, Indonesia, Thailand, and Vietnam, the money targets diseases that kill nearly 2 million people worldwide every year.

Mir's Nine Lives Slated to have been junked in the Pacific this year, the former pride of the Soviet Union is about to get a new lease on life as the loftiest outpost of capitalism. A Bermuda-based company called Mir Corp. Ltd. has raised some $20 million (primarily from telecom tycoon Walter Anderson) to renovate the creaking space station and plans to make a buck by selling time and space aboard what CEO Jeffrey Manber calls "one of the world's great destinations." He envisions that advertising and maybe even some research will keep the station afloat. Mir Corp. will be under majority control of RKK Energia, the firm that builds much of Russia's space hardware.

Try, Try Again As scientists duke it out over the safety of genetically modified (GM) organisms, nations have reached a frustrating impasse on crafting trade rules. Signatories to the 1992 biodiversity treaty agreed to address the environmental impact of certain GM products. After hammering away for 8 years at a new treaty on the export of GM products, negotiators will pick up the beat again next week in Montreal.

Major ag exporters, including the United States, argue that any treaty on segregating and labeling GM crops should apply only to seeds or organisms that could escape into the wild. However, delegates from Europe—where passions over GM foods have flared (*Science*, 7 August 1998, p. 768)—plan to lobby for broader language that would give countries the right to ban products even in the absence of strong scientific evidence that they are unsafe. Don't count on any compromises just yet.