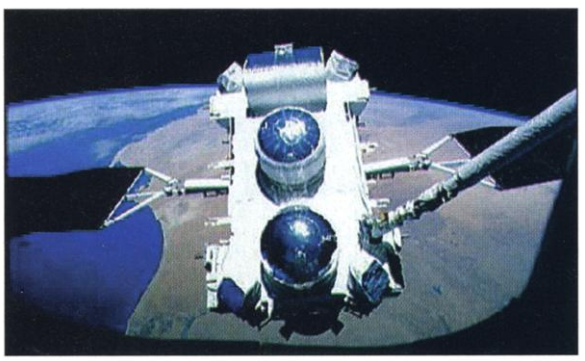
ASTRONOMY

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-