suffering volcanic eruptions more frequently now than it did in the past. "It's hard to believe that [nothing much] has happened in the 15-year gap between Voyager and Hubble," says Spencer. The Hubble images "suggest that eruptions happen from time to time and then fade without a trace."

Visible-light telescopes on Earth could not have detected the bright spot. But ground-based infrared telescopes—if they were focused on Io at just the right time—probably would have recorded the "hot spot" that must have accompanied the eruption, Spencer speculates.

Because Hubble's wide-field and planetary camera took images at 11 visible-light wavelengths, researchers have a chance of identifying the chemical composition of the spot. Sulfur dioxide is a likely candidate, says Spencer, since it's a known resident of Io's atmosphere and associated with volcanic activity on the moon. Detailed infrared spectra taken by Galileo once it reaches Jupiter in December may unveil the composition—if the spot hasn't already vanished.

Imaging a tiny object beyond Jupiter's orbit, Hubble recently recorded another type of outburst. Observations of newly discovered Comet Hale-Bopp taken Sept. 26 brought both good news and bad news. Harold A. Weaver of Applied Research Corp. in Landover, Md., and his colleagues had hoped Hubble would take a high-resolution image of the comet, which may dazzle skywatchers when it nears the sun in April 1997 (SN: 9/23/95, p.200). But an error in positioning Hubble prevented it from taking spectra of the comet or imaging the body at a resolution sharp enough to estimate the size of its nucleus.

The comet pictures do reveal a blob of debris flung out of the nucleus, however. Weaver says the debris probably represents a chunk of the comet's icy crust hurled into space by a combination of solar heating and the comet's rapid rotation. The spiral path of the debris, he adds, reflects the rotation of the nucleus, which completes one revolution in a week.

Piecing together data from Hubble and images taken hours to days later by a telescope at Teide Observatory in the Canary Islands, Spain, Weaver estimates that the debris moves at 109 km an hour and probably separated from the comet a mere 2 days before Hubble took the picture. Hubble will try to achieve its original goal—obtaining a high-resolution image and spectra—at the end of the month. *—R. Cowen*

Controversy sparks panel

To avoid any repeat of the sort of abuses some people suffered in federally sponsored radiation experiments before and during the Cold War, President Clinton last week set up a committee charged with setting clear ethical standards for human research.

At a White House ceremony, Clinton described the National Bioethics Advisory Commission (NBAC), whose members will also comb existing federal research involving humans for ethical flaws. The President proposed the NBAC in response to the highly publicized reports of his Committee on Human Radiation Experiments. He accepted that committee's final report at the same event.

Both the committee's preliminary release of details on government-supported radiation experiments from 1944 to 1974 (SN: 10/29/94, p.276) and like studies by the Department of Energy last year revealed a startling pattern of secrecy and "abuse of patients' trust," according to committee head Ruth R. Faden, a bioethicist at Johns Hopkins University in Baltimore.

Some of the secret studies were part of the Manhattan Project, the World War II effort to build an atomic bomb. In these experiments, researchers injected plutonium into people with cancer or other ills to note how long they'd retain the radioactive material. The injections offered patients no known benefits.

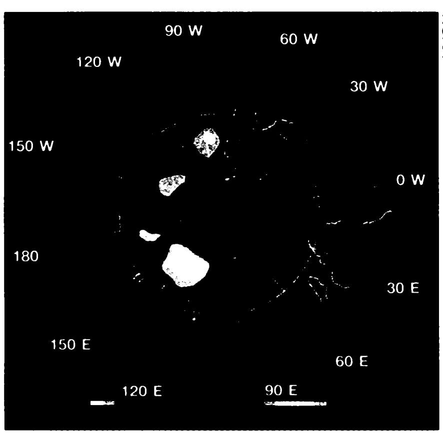
Last week's final report paints a more complete mural of the nearly 4,000 biomedical radiation studies. Most of them, the report states, involved radioactive tracers in amounts similar to those used today, and "most. . . were unlikely to have caused physical harm." These included immune-linked tracers for insulin, studies that spawned today's radioimmunoassays for trace hormones and other molecules.

But the report contrasts this work to such quiet Manhattan Project experiments as those designed to find what total body irradiation does to people with tumors known to be unresponsive to radiation.

Because the committee also found signs of "serious problems" in *today's* research—though nothing like what's in the Cold War report—the NBAC will probably begin with those.

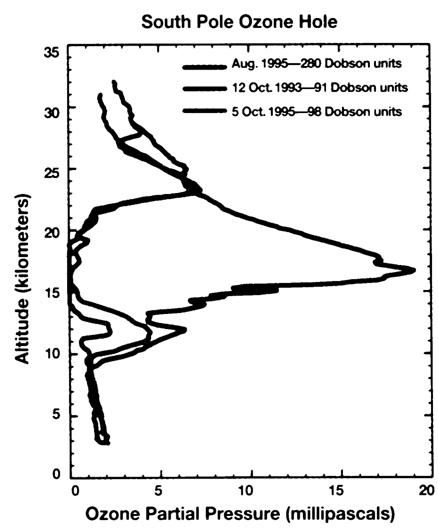
Seriously ill patients, the report notes, may have unrealistic expectations about enrolling in studies because consent forms may be overly optimistic. *—M. Centofanti*

Ozone hole reemerges above the Antarctic



NOAA

Ozone hole appears as a magenta blotch over Antarctica in this satellite image (left). Graph (right) compares 1995 ozone loss over the South Pole (green line) with that of 1993 (red line). Blue line shows values before destruction started.



NOAA

Like a continent-sized infection, the ozone hole has once again eaten its way across the Antarctic sky, reaching near-record proportions last week.

Each year since the late 1970s, much of the stratospheric ozone above Antarctica has disappeared during September, creating what is popularly called the ozone hole. Caused by chlorine and bromine pollution in the atmosphere, the ozone loss normally peaks in mid-October. The hole usually closes in November, when ozone-rich air from the north moves over Antarctica.

According to David J. Hofmann of the National Oceanic and Atmospheric Administration in Boulder, Colo., scientists tracking conditions at the South Pole measured ozone concentrations of 98 Dobson units last week. Though extremely low, the values did not break the record established in 1993, when ozone dipped to 91 Dobson units at the South Pole. At that time, ozone loss spread over 23 million square kilometers, a region almost the size of North America.