Because of those precautions, other UV researchers are convinced that Kerr and McElroy's readings, taken once or twice an hour every day for the past 4 years, reveal a real increase. "I'm very impressed with the measurement," says John DeLuisi of the National Oceanic and Atmospheric Administration's Air Resources Laboratory in Boulder.

The researchers were also able to show that the UV-B increase was due to ozone loss and not, say, to clearer skies or less low-level air pollution. Because clouds, haze, and sulfate particles from power plants block radiation across the entire UV-B band while ozone leaves its mark only at the shortest wavelengths, making that link requires an instrument that can discriminate between different UV-B wavelengths.

Unlike earlier instruments, which deliver a single intensity reading for the whole UV-B band, from 290 to 330 nanometers, the Canadian device splits the UV-B radiation into component wavelengths and tracks their intensity individually. At 324 nanometers, where ozone should have little effect, Kerr and McElroy found no changes in intensity. But at 300 nanometers—closer to the peak of ozone absorption—UV-B intensity shot up, with summertime intensities increasing by 7% each year and wintertime intensities jumping by 35%.

Kerr and McElroy hasten to point out that the 300-nanometer increase, striking as it is, won't turn Toronto into a skin-cancer capital. Wintertime UV-B is very weak to start with, they note, and future increases may not be as steep. The period of their measurements included, among other things, the eruption of Mt. Pinatubo, which helped to push 1993 ozone levels over the mid-latitutes to their lowest point ever (*Science*, 23 April, p. 490).

Those unusual conditions, however, are one reason why Kerr and McElroy's result may not convert the doubters. S. Fred Singer, for example, a former chief scientist of the Department of Transportation who says he is "skeptical about the need to take hasty action to protect the ozone layer," sees nothing in these findings to change his opinion. Singer says that assuming Kerr and McElroy's UV-B increase is real, the ozone losses and the UV-B rise might have resulted from an unusual combination of natural causes, including the volcano. Four years of measurements, he contends, isn't enough to establish a trend.

Both sides do agree on a way to resolve this debate: longer-term data on UV-B trends. Canada has had a network of UV monitoring stations running since last year, with the Toronto site as its nucleus, but the United States is only now planning a comparable network. After Kerr and McElroy's finding, says Frederick, "I hope someone in the United States has the sense to be embarrassed that we haven't done something similar."

–Tim Appenzeller

PALEOANTHROPOLOGY

Possible Neandertal Ancestor Found

Peering out from its limestone tomb and pinioned by stalagmites growing from its body, a face from the distant past gazed for the first time on the modern world last month. The face is attached to a partly visible skeleton trapped in a cave in southeastern Italy, and a team of Italian scientists has tentatively identified the individual as a pre-Neandertal, possibly 400,000 years old. If they are correct, it would be the most complete skeleton ever found from this period in Europe, otherwise represented by some skulls and small fossil fragments, and it may finally shed some light on the origin of the Neandertals.

Neandertal expert Bernard Vandermeersch of the University of Bordeaux, who has seen photographs of the bones, says it appears to be a major discovery. "We've never seen a complete skeleton," he says. "Skulls, yes, quite a few. Bones, yes, plenty. But you are never quite sure, when you put them together, that they belong to the same individual. We've never seen the actual relation of the skull to post-cranial bones."

Few and far between. The Altamura skeleton joins scattered fossils from the period preceding the Neandertals.

Spelunkers, intrigued by air coming from a hole in the ground, stumbled on the skeleton in the cave-wormed hills near the town of Altamura on 7 October. They lowered themselves down, and as they progressed some 60 meters along an underground corridor, they found the skeleton, partly covered by cauliflower-like formations of calcium carbonate and stalagmites. Anthropologist Vittorio Pesce Delfino of the University of Bari, some 40 kilometers north of the site, examined the specimen soon after. He says the skeleton is that of an individual 160 to 165 centimeters tall. It lies on its back, with the skull partly turned to the left. A fork-shaped stalagmite covers the base of the skull. Part of the face is apparent, including the eye orbits and all of the frontal region.

It's the characteristics of the face that give scientists clues to the skeleton's age and its evolutionary status somewhere between Neandertals and an earlier hominid, *Homo erectus*. According to Eligio Vacca, an archeologist from the University of Bari, the face has pronounced ridges over the eye sockets, which are Neandertal features, but "the morphology of the ridges, that of the vault of the skull, and the maximum facial width are not fully Neandertal." Since the first fossil evidence for *erectus* appeared in Europe about 500,000 years ago, and the first Neandertals appear about 130,000 years ago, the transitional features of the Altamura fossil put it somewhere in between those dates. Appearances can be deceiving, of course, and most researchers are waiting for more precise geeologic dating before accepting the fossil's transitional status.

But it's the bones below the neck that have created excitement in the research community. The period preceding the Neandertals in Europe is particularly murky, and anthropologists hope that a more complete skeleton, such as the Altamura find, will provide them with a better understanding of the evolutionary progression from *erectus* to Neandertals. The existing hominid fossils from this period vary enough that some scientists argue they must have belonged to at least two species, one of which led to Neandertals—and then a dead end—while another, separate species eventually became *Homo sapiens sapiens*. But others claim these fossil variations are relatively insignificant, and the hominids all belong to one lineage that gave rise to Neandertals.

The Altamura skeleton, says paleoanthropologist Christopher Stringer of the Natural History Museum in London, "may be a key finding for the little known transitional period and may help resolve the controversy." Of course, nothing is going to be settled until the fossil is released from its calcium sheath and examined completely, and that will be a slow and delicate process since it's hard to determine where the covering ends and the bones begin. In the meantime, Italian carabinieri stand guard over the remains of what may or may not be a Neandertal ancestor.

–Alexander Dorozynski

Alexander Dorozynski is a science writer in Paris.