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Cover: The proposed international space station, scheduled to be completed in 2002, will contain elements from the United States, Canada, Russia, Japan, and the European Space Agency. The station may usher in a new era in international cooperation. Budget cuts suffered by space agencies in the United States and abroad may prompt further collaborations. (Illustration: NASA)

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Letters

Causes, cures for evergreen ills

In "When Nitrate Reigns" (SN: 2/11/95, p.90), Van Lear says that the more atmospheric nitrate moving through the soil, the more calcium and magnesium leached from it.

Peter Tompkins and Christopher Bird's *Secrets of the Soil* (Harper & Row, 1989) has a chapter on the successful use of rock dust to renew European forests dying from acid rain. Paragneiss, diabase, basalt, porphyry, and other rock are used.

An early clue to this method occurred in Germany when dying trees downwind of road construction were dusted with pulverized paragneiss rock and showed healthy new growth from their unintentional treatment.

Lauren Ayers
Davis, Calif.

I've seen signs of evergreen distress steadily increasing in recent years all over eastern Massachusetts. Most roadside evergreens are quite dead or dying. Depressing, since evergreens are acid-loving plants, and I assume they're chosen for planting along highways in part for resistance to air pollution.

The highways are not the only place I've noticed evergreens in distress. I live in a suburb filled with well-tended gardens, but a ride down almost any street will offer views of evergreens of all shapes and sizes in various stages of ill health. Cypress in particular, appear to be dying off at a rapid rate.

Plants in full sun appear to be in worse shape than those in shade — on the same street, the sunny side will often look worse than the shaded side. This observation makes me think that perhaps evergreens are being damaged by ultraviolet radiation, since they do not get to shed their damaged leaves yearly, as deciduous trees do. I would be curious to know whether ozone depletion and elevated UV radiation are working in combination with pollution and acid rain.

Ellen R. Fisher
Newton, Mass.

While studying nitrogen oxides pollution for the California Department of Health, I collected dew from yellowing needles of otherwise healthy Monterey pines growing in the San Francisco Bay Area and compared the anions and cations to material collected on clean filter paper. Dew on filter paper had a pH of 3 and contained mostly nitrate, with some sulfate and some ammonia. Dew from needles was only slightly acidic and contained mostly nitrates of calcium and magnesium, cations obviously leached from plant tissue.

This may indicate that tissue is first depleted of elements needed for photosynthesis and plant structure, thus altering survival capacity and limiting the ability to absorb other nutrients.

The problem in European forests may be primarily an effect of the large quantity of acids from sulfur oxides and secondarily one of nitrogen oxides.

Evaldo L. Kothny
Walnut Creek, Calif.