Science Fiction? Maybe Not

Worried that efforts to limit greenhouse gases may fail, scientists are conceiving exotic ways to reverse or slow global warming.

Sunblock for the sky

PROPOSAL Millions of tons of sulfur dioxide are released into the atmosphere by balloons to reflect sunlight away from earth.

PROBLEMS May damage ozone layer; expensive.

2 feet

Sunlight bent up to 2 degrees

SPACE

STRATOSPHERE

Sulfur particles would remain in the stratosphere for 1-2 years.

Increased cloud reflectivity would last up to a week.

TROPOSPHERE

No death ray here

PROPOSAL Trillions of lenses are placed in a special orbit where the gravity of the sun and earth are balanced. Together, the lenses would bend some sunlight away from the earth.

PROBLEMS Impractical any time soon; expensive.

Partly cloudy, all the time

PROPOSAL If ships sprayed mists of salt water into the air, water would condense on the salt molecules, increasing the reflectivity of clouds.

PROBLEMS The increased reflectivity would last up to a week, so the spray process must be continuous.

HOW IT MIGHT WORK

1 An electric motor rotates the three rotors.

2 Normally, wind hitting a stationary cylinder is split along both sides.

Air current

Rotor (top)

Seawater mist

Rotor

3 The rotation drives more of the air current to one side of the cylinder, pushing the vessel forward.

4 As the vessel moves, it drags a propeller in the water to generate electricity.

5 The electricity operates a pump, which sprays salt water up through the rotors.

No, it's not litter

PROPOSAL Floating white plastic or foam disks in the ocean could reflect solar radiation back into space. A similar proposal would cover deserts with white plastic mulch.

PROBLEMS Not as efficient as reflection from space, since only half of sunlight reaches the earth's surface. Disks may discolor or stray.

Turning the ocean green

PROPOSAL Adding iron to the ocean stimulates the growth of phytoplankton, tiny floating sea plants that soak up carbon dioxide. Dead phytoplankton sink to the bottom of the ocean, keeping carbon there for centuries.

PROBLEMS Carbon dioxide may eventually recirculate into the atmosphere.

Sources: Alvia Gaskill, Environmental Reference Materials

Chlorophyll, a green pigment in photosyn-