

(un)Fasten your Seatbelts

You are on an airplane. The “fasten seatbelts” light blinks off. Your parents say it’s OK to get up and stretch your legs--it’s going to be a long flight.

Only a kilometer ahead in the cloudless sky, there is a front of strong winds. But you don’t know that. Neither do your parents. The pilot doesn’t know either.

When the plane hits these winds, the cabin will shake. If you’re standing up, you might stumble. If you’re sitting down, your soda will spill. Watch out! You could drop your GameBoy or scatter your playing cards, too.

Why didn’t anyone warn you? Because today’s weather satellites can’t see winds in clear skies. To figure out which way the wind blows, satellites look at the motions of clouds. Without clouds, the wind is invisible.

“Believe it or not, the best way for pilots to find out about strong winds is to talk to other pilots flying ahead of them,” says NASA scientist Bill Smith. They need help!

And now help is on the way. NASA is working on a device that can “see” the wind in cloudless skies. Its name is GIFTS—short for Geosynchronous Imaging Fourier Transform Spectrometer. Doesn’t that sound like a machine from a science fiction book?

What GIFTS does is like science fiction.

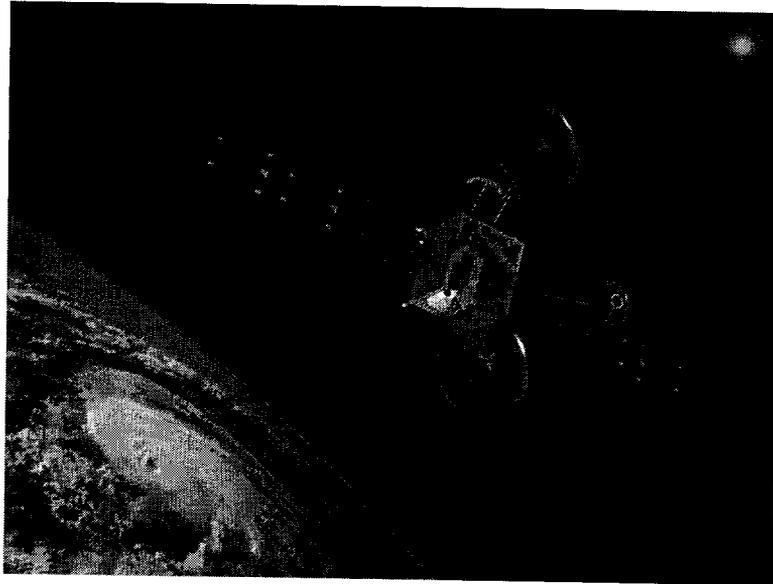
GIFTS doesn’t bother looking for clouds. GIFTS looks for water vapor, instead. Water vapor in the air is invisible to human eyes. But GIFTS doesn’t have human eyes. It has infrared eyes that can find water vapor. When GIFTS sees water vapor moving, it has found some wind!

GIFTS will orbit Earth on a satellite named EO-3 (pronounced “Eee-oh Three”) sometime after the year 2006. It will look down on our planet and make 3D movies of the wind.

Finally, a weather satellite can warn pilots that invisible winds are ahead. Then the pilot can warn you—so you don’t get up at the wrong time, or spill your soda, or drop your playing cards. Flying on airplanes will be safer and more fun!

Find out more about EO-3 and play a game at The Space Place,
http://spaceplace.nasa.gov/eo3_compression.htm .

This article was written by Tony Phillips and Gail Koske Phillips and provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



Caption: Earth Observing 3 will study Earth weather.