

Deserts growing, study finds Jet stream shift could mean drought-stricken areas will get even drier

By ANDREW BRIDGES / Associated Press

WASHINGTON * Deserts in the American Southwest and around the globe are creeping toward heavily populated areas as the jet streams shift, researchers reported Thursday.

The result: Areas already stressed by drought might get even drier.

Satellite measurements made from 1979 to 2005 show that the atmosphere in the subtropical regions north and south of the equator is heating up. As the atmosphere warms, it bulges out at the altitudes where the northern and southern jet streams slip past like swift and massive rivers of air. That bulging has pushed both jet streams about 70 miles closer to the Earth's poles.

Because the jet streams mark the edge of the tropics, in essence framing the hot zone that hugs the equator, their outward movement has widened the tropics about 140 miles. That means the relatively drier subtropics move as well, pushing closer to places such as Salt Lake City, where Dr. Thomas Reichler, co-author of the new study, teaches meteorology.

"One of the immediate consequences one can think of is those deserts and dry areas are moving poleward," said Dr. Reichler, of the University of Utah. Details appear today in the journal *Science*.

The movement has allowed the subtropics to edge toward populated areas, including the American Southwest, southern Australia and the Mediterranean basin. In those places, the lack of precipitation already is a worry.

Additional creep could move Africa's Sahara Desert farther north, worsening drought conditions that are already a serious problem on that continent and bringing drier weather to the countries that ring the Mediterranean Sea.

"The Mediterranean is one region that models consistently show drying in the future. That could be very much related! to this pattern that we are seeing in the atmosphere," said Dr. Isaac Held, a senior research scientist with the National Oceanic and Atmospheric Administration. He was not connected with the research.

A shift in where subtropical dry zones lie could make climate change locally noticeable for more people, said Dr. Karen Rosenlof, a NOAA research meteorologist also unconnected to the study.

"It is a plausible thing that could be happening, and the people who are going to see its effects earliest are the ones who live closer to the tropics, like southern Australia," said Dr. Rosenlof. Her own work suggests the tropics have actually compressed since 2000, after growing wider over the previous 20 years.

Dr. Reichler suspects global warming is the cause of the shift but said he can't be certain. Other possibilities include variability and destruction of the ozone layer. However, he and his colleagues have noted similar behavior in climate models that suggest global warming plays a role.

Moving the jet streams farther from the equator could disrupt storm patterns, as well as intensify individual storms on the pole ward side of the jet streams, said lead author Dr. Qiang Fu, a University of Washington atmospheric scientist.