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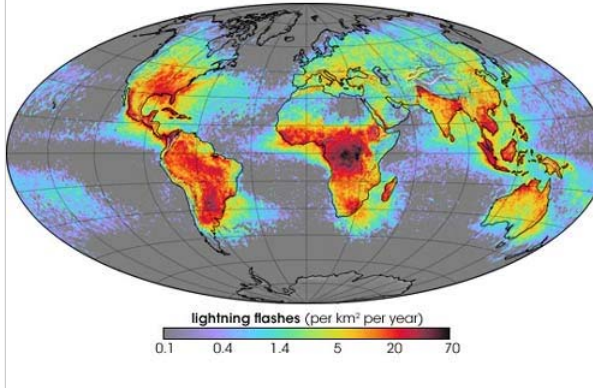
LiveScience's Image of the Day

Where Lightning Strikes

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Water covers roughly three quarters of the Earth's surface, but it doesn't draw nearly the amount of lightning strikes that land does.

The map above shows the average yearly counts of lightning flashes per square kilometer based on data collected by NASA satellites between 1995 and 2002. Places where less than 1 flash occurred (on average) each year are gray or light purple. The places with the largest number of lightning strikes are deep red.

Detecting lightning also helps scientists pinpoint areas where strong convection--the rising of air that helps create bolts--is occurring. Convection is a key mechanism for "evening out" heat and moisture around the globe, and monitoring it might reveal how Earth's climate is changing over time.

Much more lightning occurs over land than ocean because daily sunshine heats up the land surface faster than the ocean. The heated surface heats the air, and more hot air leads to stronger convection, thunderstorms, and lightning.

The map also reveals that more lightning occurs near the equator than the poles, which is also related to differences in heating, as the equator is warmer than the poles and storms rage across the tropics every day.

This image is based on lightning detections from two satellite sensors: The Lightning Imaging Sensor that flies on the Tropical Rainfall Measuring Mission satellite, which is a joint NASA/JAXA (the Japanese Space Agency) mission and by NASA's Optical Transient Detector at the Marshall Space Flight Center. Detecting lightning strikes is important for improving public safety during severe weather, warning land managers of possible wildfire triggers, and protecting electrical and transportation systems.

--Bjorn Carey

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