



The global water cycle on earth in the last 4.5 billion years

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There is evidence that surface water is present on Earth since shortly after its formation. This water interacts with surface minerals as well as minerals deep inside oceanic plates through cracks and hydrothermal systems. Plate tectonics and mantle convection will transport water into the mantle through subduction and out of the mantle mostly at hot spots and MORs. In this study we model the internal water cycle of an Earth-like planet and calculate the water budget of the mantle. The results will show if earth's internal water content is in equilibrium, or if the mantle is gathering from or losing water into the atmosphere.