

MIS010-06

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Volcanic centers as carbon observatories.

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Active volcanic centers are notorious sites of emission of volatile species. Carbon dioxide is one of the main components. Volcanoes classified as active may only very rarely be in an eruptive state. Nevertheless, the active degassing of CO₂ at volcanoes classified as active is a continuous phenomenon. The global flux of CO₂ from volcanic centers is unknown at present. New technological advances promise to put us in a position to change this situation in the coming decades. Remote sensing methods based on sky scanning are delivering increasingly accurate estimates of total gas fluxes.

The reliable interpretation of the efficiency of CO₂ degassing from volcanic systems must rest on a comprehensive understanding of the thermodynamics and kinetics of CO₂ degassing from magmas. The data require to describe this situation must be sufficiently high in quality and quantity such that generalisable models of the polythermal, polybaric, separation of multicomponent magmas and volatile phases can be simulated accurately.

Thus two great tasks lie ahead for accessing the wealth of information on carbon fluxes provided by volcanic centers; one experimental and one observational.

Keywords: carbon, volcanoes, remote sensing