VOLCANOLOGY ABSTRACTS

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Eruptions in Space and Time: Durations, Intervals, and Comparison of World's Active Volcanic Belts

A computerized data bank, compiled over the last 12 years at the Smithsonian Institution, allows summaries to be made of Holocene volcanism. The Scientific Event Alert Network tracks current volcanic activity. However, the record of most volcanoes is poor before the last 100 years, and some eruptions still pass unreported.

The time interval since the previous eruption can be calculated for 4,835 of the 5,564 compiled eruptions. The median interval is 5.0 years, but much longer intervals commonly precede unusually violent eruptions. For the 25 most violent eruptions in the file (with known preceding interval), the median interval is 865 years. Of the historic eruptions in this group, 50% resulted in fatalities.

The interval between an eruption's start and its most violent paroxysm may be measured in months or years, but it is usually short. Of the 205 larger eruptions for which data are available, 92 had the paroxysmal event within the first day of the eruption, allowing little time for emergency preparations after the eruption's opening phase.

To compare the recent vigor of different volcanic belts, we calculated the number of years in which each volcano was active in the last 100 years, summed these for each belt, and divided by belt length. Another index of recent vigor is the number of recognized Holocene volcanoes divided by belt length. A third index is the number of large explosive eruptions (volcanic explosive index $\geq$ 3) of the last 100 years, again normalized by belt length. These three measures correlate reasonably well, serving to contrast vigorous belts such as Kamchatka, Central America, and Java with relatively quiet belts such as the Cascades, South Sandwich Islands, Greece, and southern Chile.