IRIDIUM EMISSIONS FROM HAWAIIAN VOLCANOES; D. L. Finnegan, W. H. Zoller and T. M. Miller, Los Alamos National Laboratory

Particle and gas samples were collected at Mauna Loa volcano during and after its eruption in March and April, 1984 and at Kilauea volcano in 1983, 1984, and 1985 during various phases of its ongoing activity. In the last two Kilauea sampling missions, samples were collected during eruptive activity. The samples were collected using a filterpack system consisting of a Teflon particle filter followed by a series of 4 base-treated Whatman filters (1). The samples were analyzed by INAA for over 40 elements. As previously reported in the literature, Ir was first detected on particle filters at the Mauna Loa Observatory and later from non-erupting high temperature vents at Kilauea (2,3). Since that time we have found Ir in samples collected at Kilauea and Mauna Loa during fountaining activity as well as after eruptive activity (4,5). Enrichment factors for Ir in the volcanic fumes range from 10^4 to 10^5 relative to BHVO.

Charcoal impregnated filters following a particle filter were collected to see if a significant amount of the Ir was in the gas phase during sample collection. Iridium was found on charcoal filters collected close to the vent, however, in samples collected in the troposphere several kilometers downwind of the vent, no Ir was found on the charcoal filters. This indicates that all of the Ir is in particulate form very soon after its release.

Ratios of Ir to F and Cl were calculated for the samples from Mauna Loa and Kilauea collected during fountaining activity. The average ratios for these samples were $Ir/F = 2\times10^{-6}$ and $Ir/Cl = 8\times10^{-7}$. These ratios are approximately a factor of 10 higher than reported by Olmez *et al.* (2). Since the F and Cl ratios to S are about the same as previously reported (0.012 and 0.017, respectively) the Ir flux from Kilauea also increases by a factor of 10.

The implications for the KT Ir anomaly are still unclear though as Ir has not been found at volcanoes other than those at Hawaii. Further investigations are needed at other volcanoes to ascertain if basaltic volcanoes other than hot spots have Ir enrichments in their fumes.

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