

AEROSOL PARTICLES IN THE ANTARCTIC MARINE ATMOSPHERE (ABSTRACT)

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Aerosol were sampled in the Antarctic marine atmosphere over Breid Bay (70°12'S) from December 1986 to February 1987. According to electron microscope observation of the particles collected on calcium thin film, most particles are sulfuric acid particles. Size distribution of the reaction rings suggests that the particles are rather smaller than that collected inland in Antarctica in summer, although both aerosols are sulfuric acid particles. This suggests that the particle formation, growth and removal processes of particles in Antarctic marine atmosphere differ from those in the inner Antarctic region.

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SEASONAL CHANGE IN BEHAVIOR OF SULFATE PARTICLES IN THE ANTARCTIC ATMOSPHERE (ABSTRACT)

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Seasonal change in solar radiation possibly influences production of secondary particles through photochemical processes. The particle size distribution of sulfate particles collected at sampling site G 11 (72°23'S, 32°20'E, Jan., 1987) and Mizuho Station (70°42'S, 44°20'E, Aug., 1986) showed following features.

1. Number concentration of particles in submicron size range in summer was larger than that in winter.
2. Mode of number-size distribution function of collected particles was 0.06 μm in both summer and winter.
3. In summer sulfuric acid particles were predominant and the particles having radius larger than 0.3 μm up to 1.8 μm were present but not in winter.
4. In summer the Aitken particle number mixing ratio was larger than that in winter.

Particles with radius larger than 0.3 μm were rarely seen in the Antarctic marine atmosphere. In the inner Antarctic atmosphere the rain- and wash-out removal process of aerosol particles seems to be less active than in the marine atmosphere. Such atmospheric condition may enable relatively large particles to form.

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