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TWO-YEAR MONITORING OF CHINA SAND STORM PARTICLES WITH PETRI DISH AND GLASS SLIDE IN SHELTER

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The China sand storm particle was monitored by a microscopic technique at Taipei for the past two years. An anti-rain meteorological shelter with two layers of shutter at four directions was designed for monitoring the target sand particles. Within the shelter a 2-liter beaker was placed in the center and a 9-cm petri dish with glass slide was adhered in bottom center of the beaker. The petri dish with glass slide was replaced with new one for three times a week. Exposed slides were observed at magnification of 200 under dark-field metallurgical light microscope. Results showed that sand particles were differentiable from sea aerosol, pollens, and other anthropogenic particles. Typical sand particles were shiny yellow, yellowish brown or brown with amorphous flaky shape. Those with size 5-20 um are chosen as indicator particle species for use in counting the deposition. In non-sand storm days the background particle number per field is less than 10. From the results of particle counting in February and March 2003, we found three and three sand storm episodes at Taipei, respectively. During the period from January 1 to March 16, 2004, we had detected totally only three episodes. The microscopic approach provides us a direct method for detecting and quantifying the severity of sand storm. We therefore recommend this approach to be used in other country or areas for monitoring this transboundary particle pollution.