correspondence

Urban Heat Islands Detected by Satellite

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A color-enhanced image of urban heat islands in New Hampshire, Massachusetts, and Rhode Island as detected by the NOAA-5 satellite at 1400 GMT on 23 May 1978 is shown on the cover. The 10.5-12.5 μm thermal IR channel of the Very High Resolution Radiometer (VHRR) was utilized for the digital enhancement depicted in the image. Nadir resolution is 1 km and the scene color radiometric temperature display is: orange-yellow, 31.0°C-25.5°C; light green-dark green, 25.0°C-16.5°C; and light blue-dark blue, 16.0°C-6.0°C.

Seventeen urban heat islands with populations ranging from 32,000 (Norwood, Mass.) to 625,000 (Boston, Mass.) are evident in the image (see Fig. 1 for listings). At the time of the satellite overpass an anticyclone was centered off the northeastern United States, bringing clear skies, low-speed surface winds, and moderate relative humidity to the New Hampshire-Massachusetts-Rhode Island area. Such conditions are ideal for heat island formation. The warm areas on Cape Cod, Martha’s Vineyard, and Nantucket Island most likely result from land use, vegetation, and/or soil type. The light blue-dark blue water boundary southeast of Cape Cod delineates a sea surface temperature front that is observed each year between May and September.

FIG. 1. Listing and locations of 17 urban heat islands as numbered on cover photograph.

References


Lenticular Clouds

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In the July 1978 bulletins (p. 814), Martner presented photographs of lenticular clouds over Mt. McKinley National Park during August 1977. I enjoyed the similarity of these cloud formations to those over striking topography from the other end of the Americas. The photos reproduced here (Figs. 1–4) were taken during two weeks of the Southern Hemisphere summer, 17–31 December 1977, in Torres del Paine National Park, Chile (51°S). The park is at the southern reaches of a 100 km long ice sheet. Lenticular clouds were often observed above and downwind of the 3050 m peak Paine Grande. Similar wave clouds were also seen.
Variations of August Ice Cover in the Beaufort Sea and Related Weather Conditions

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Abstract

This note illustrates the relationships between mesoscale weather conditions and the retreat of pack ice edge or expansion of open water in the Beaufort Sea. Strong southeasterly winds in the southern Beaufort Sea and higher than normal surface temperatures appear to be the principal contributing factors to the maximum retreat of polar pack ice and vast expansion of open water.