

Optical properties of the atmosphere above the Black Sea

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We present here results of airborne measurements of atmospheric optical parameters measured at different altitudes above the Black Sea. The measurements were made during an international experiment "Black Sea - Interkosmos" [1-3]. The goal of the experiment was to validate and improve algorithms for passive remote estimations of seawater biological and optical properties.

Multispectral measurements of the optical radiance of the sea-atmospheric were made from different altitudes. The presented data includes not only measurements of upwelling light, but also measurements of descending radiance. The measurements were made at several locations and at various altitudes. At some stations there were as much as 10 measurements at different altitudes varying from 260 m to 6.52 km. The spectral photometer MKS-M used to measure light fields from the aircraft was manufactured in Germany. The descending radiation was measured in six infrared MKS-M channels centered at 757.2, 760.6, 763, 765.5, 781.3 and 823 nm (block AS). The ascending radiation of the sea-atmosphere system was measured in the following 13 visible and infrared MKS-M channels: 417.5, 450.5, 485, 519, 571, 619.5, 680, 712, 750, 787, 820, 880, 1027 nm (block BS).

Figure 1 shows an example of measurement of ascending and descending radiation from an aircraft. The data in the form of digital tables [3] are available on request.

The ways to implement presented database in algorithms for atmospheric optical correction are discussed.

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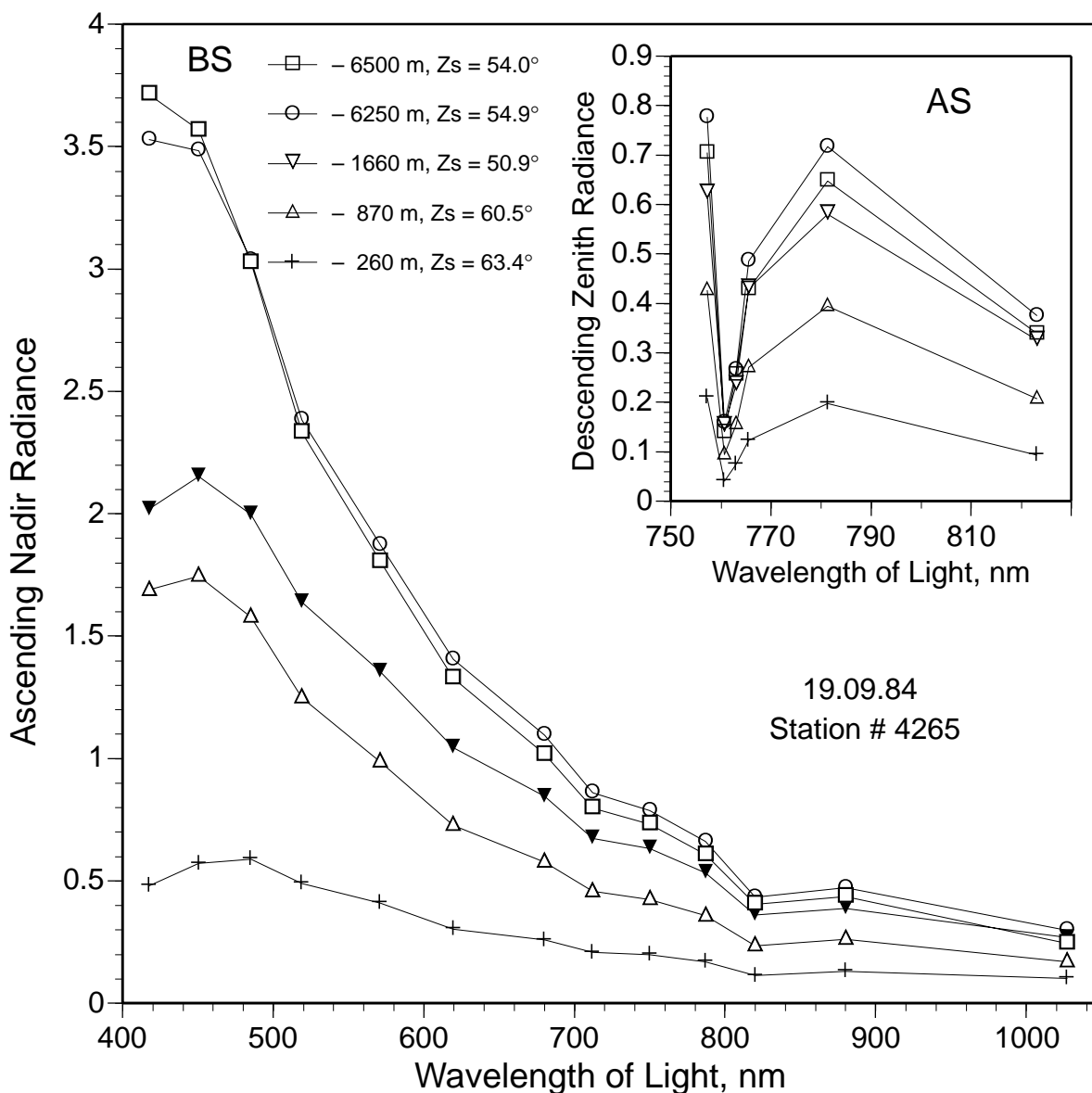


Figure 1. Example of measurements of ascending and descending radiance ($\mu\text{W}/\text{m}^2 \cdot \text{sr} \cdot \text{nm}$).