MINERALOGY OF MOON SURFACE AT REMOTE POLARIMETRIC INVESTIGATIONS. A. P. Vidmachenko[1,2] and A. V. Morozhenko[1], [1]Main Astronomical Observatory of National Academy of Sciences of Ukraine, Str. Ak. Zabolotnogo, 27, Kyiv, 03143, [2]National University of Life and Environmental Sciences of Ukraine, St. Heroyiv Oborony, 12, Kyiv, 03041, vida@mao.kiev.ua.

Moon has a rich base of raw materials with the potential use of these materials to facilitate human activities on our satellite and the use of resources for the development of world industry. From the point of view of the resource, the deposits of volcanic pyroclastic deposits formed during volcanic eruptions are especially interesting [20]. At orbital remote observations of such deposits it was found > 100, and 12% of them have an area > 1000 km2.

The current problem at studies of the Moon is still the mineralogical mapping of its surface [8, 9, 17-19]. Since it is not yet feasible to build such maps based on data from contact methods of research, the need to develop reliable remote methods has emerged. This can be done from the space aparat in the polar orbit of the Moon [13, 15, 16]. Such a polar satellite can be equipped with devices, experience of developing and manufacturing of which - have an Ukrainian scientists. 1) A camera with selected filters to produce images with the required resolution [2]. 2) Spectropolarimeter for determining some physical soil parameters [3-7]. 3) Spectrometer for spectral range which covering the strips of pyroxene. Due to the absence of the atmosphere and clouds on the Moon, observation of its surface can be practically continuous.

We propose to employ an experiment of polarization mapping of the surface of the moon at a wavelength of 240-290 nm within the phase angles of 80-120°. To do this, according to the values of the phase angle, which has the maximum value of the degree of polarization (Brewster angle), the value of the actual part of the refractive index of the substance should be determined [10, 14, 21, 22]. To minimize the effects of multiple scattering, which values of this angle are "smeared" in a certain range of phase angles $\Delta\alpha$, we propose to use observation in the ultraviolet region of the spectrum, which has an extremely low reflectivity of the soil (at the level of 1-2%), and therefore the effects of multiple Scattering is reduced to practically zero. Therefore, in this spectral diapason, the value of the Brewster angle [17] is more clearly defined.

That is, we propose mapping the values of the real part of refractive index with the analysis of the empirical relation between the maximum value of the degree of linear polarization and the normal albedo, taking into account the contribution of a one-time Fresnel reflection. We can also use the spectral values of the second Stokes parameter. Its advantage is the practical absence of multiple scattering effects.

We also continue to develop and manufacture original spectropolarimetric devices [1, 11, 12] that we can use for ground support of both Ukrainian and international space missions to the Moon.

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