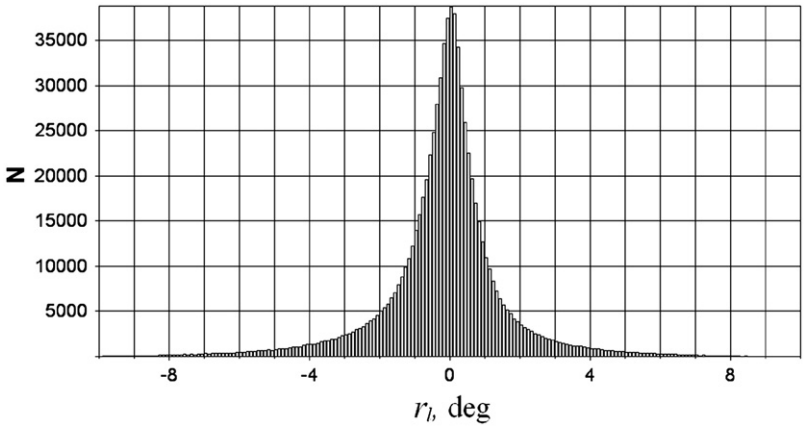

Fig. 3. A histogram of longitudinal topographic slopes on a 3.2 km base.

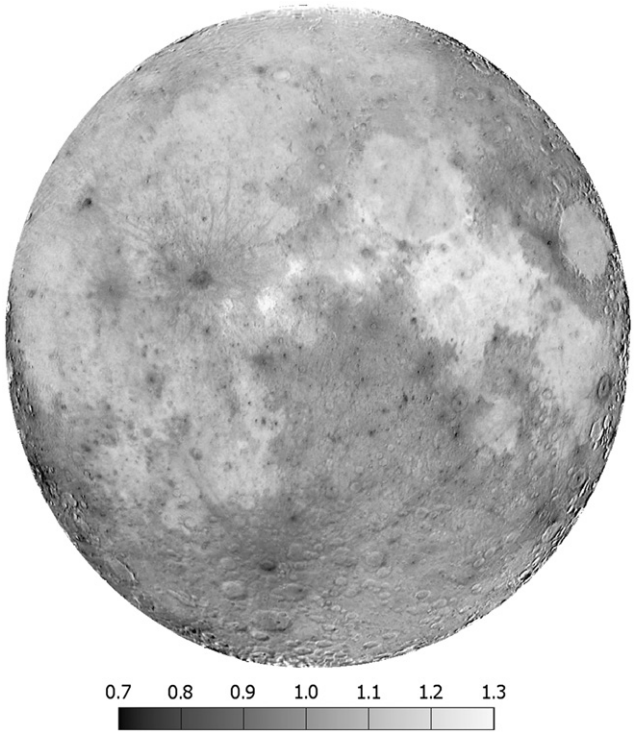

Fig. 4. A map of the parameter μ that characterizes steepness of phase function in the range of phase angles 12–22°.

Fig. 5. A map of A_0 calculated in the range of phase angles 12–22° ignoring the influence of the lunar topography.

altimeter. Although the data set is somewhat raw yet (Korokhin et al., 2010), we used the global LALT topography for comparison with our photoclinometric data in order to compensate for the topographic effect for the phase-angle-ratio maps.

Before the comparison we processed the LALT data. We transformed the data array to put the point with zero selenographic coordinates in the center of the image. Then, we re-sampled the LALT map to the resolution of our ground-based observations. The next step was calculating the longitudinal component of the surface slopes from the height distribution. Then, we transformed the LALT map from a cylindrical onto an orthographic projection. Finally, the image was smoothed by a Gaussian filter with $\sigma=0.8$ pix to make the resolution of the LALT and our maps similar. We computed the map of longitudinal topographic slopes determined on a 3.2 km base (see Fig. 8) from the LALT distribution of heights. Both the maps show a very similar distribution of the longitudinal slopes over the lunar disk (cf. Figs. 2 and 8), including the maximal value of the slope 22° at the point with the selenographic coordinates $l=0.2°$, $b=21.6°$. However, more detailed analysis reveals differences. For instance, our map demonstrates a weak residual influence from albedo (see the Copernicus ray system) and worsening resolution to the limb. The LALT map exhibits many small topographic artifacts. Fig. 9a and b show maps of longitudinal slopes for the central portion of the lunar disk ($\sim 50° \times 50°$) in a cylindrical projection: the upper panel correspond to LALT data and the lower one to our map. The most typical artifacts are displaying some craters as hummocks (see, e.g., marks 1–3, 7–9 in Fig. 9a, b) or disappearance of craters (marks 4–6). Sometimes, the LALT map reveals nonexistent peaks (see marks 10 and 11). The most probable reasons for these artifacts are errors of interpolation at mosaicing. We also note the presence of longitudinal modulation