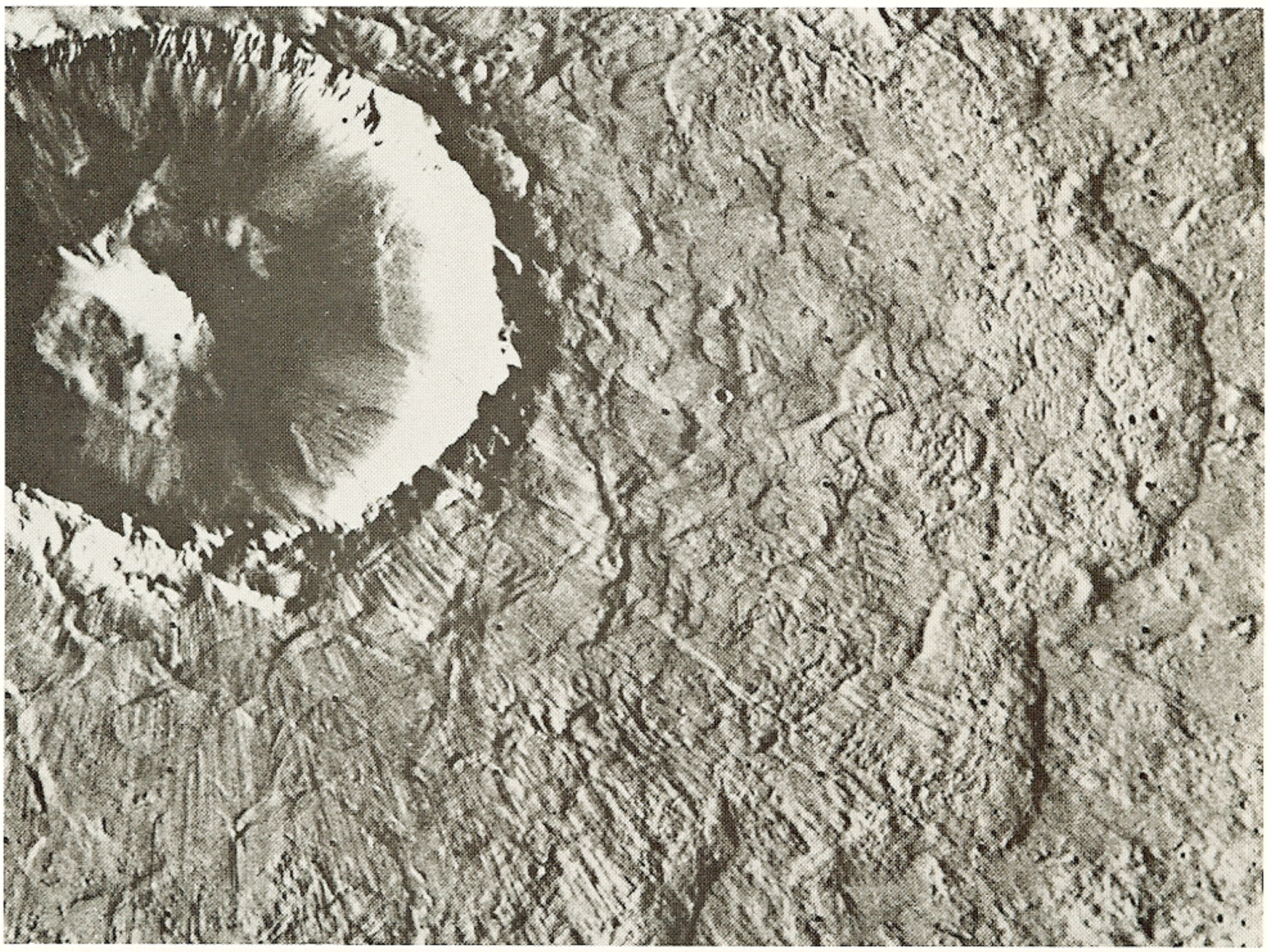
Dr. Alex Woronow is involved in the investigation of impact craters as they relate to the physical characteristics of planetary-surface units. Because impact craters pervade the surfaces of the terrestrial planets, and because they form at random locations on the surfaces, craters have randomly sampled the diversity of geologic conditions on the planets over much of their histories. Determining how different target materials influence the sizes and morphologies of the resulting craters enables researchers to infer the physical characteristics of the planetary-surface units. By understanding how different forms of erosion and deposition alter crater size-frequency data and change crater morphologies, the erosional and depositional environments of the planetary surfaces can be inferred. Understanding both formation and deterioration of craters allows researchers to infer the relative ages of geologic units and the temporal changes in the surface environments.

Both analytical and computer statistical modeling are employed in order to better understand how various conditions affect an observed cratering record, the results being applied to the Martian lobate-ejecta craters and to the densely cratered terrains of the Moon, Mars, and Mercury. As models are improved, the early conditions of the terrestrial planets can be reconstructed with increasing confidence.



Mr. Ewen Whitaker specializes in lunar surface data, encompassing such diverse aspects as: (a) cartography, including the international standardization of nomenclature, extension of farside nomenclature, the history of lunar mapping and observation in general; (b) topography and lunar geology, including recognition of ancient lunar basins; (c) surface colorations, spectral signatures and albedos and their interpretations; (d) surface properties from all remote sensing studies, correlation of results; (e) major-element trends in soils and rocks, with implications for remote-sensing studies; (f) interpretation and theory of surface photometric properties; (g) crater density statistics and surface impact history.