

A B S T R A C T

DESCRIPTIONS OF THE COMPOSITION AND GRAIN-SIZE CHARACTERISTICS OF FINES FROM THE APOLLO XII DOUBLE-CORE TUBE

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Ten aliquots representing several of the sedimentary units from the bottom to the top of the double-core tube collected during the Apollo XII mission have been studied.

The size-frequency distributions of these aliquots were obtained and the granular material has been studied microscopically.

The various samples each have distinctive size-frequency distributions as well as different combinations of lithologic constituents.

The appearance of the core indicates that several distinctive units are present based on the easily observed characteristics of color and grain-size. The evidence for these inhomogeneities has been further defined by our studies and permits some conclusions to be drawn about the processes which operated to produce the various layers.

The core records a sequence of geologic events which occurred in the local vicinity of the Apollo XII site and possibly other more remote events. For example, the coarse layer described in the preliminary report as Unit VI has a size-frequency distribution characteristic of primary impact-generated debris. This layer is essentially composed of a debris from a single holocrystalline igneous rock with approximately the following mineralogy:

| | |
|-------------|-----|
| Olivine | 60% |
| Pyroxene | 20% |
| Plagioclase | 15% |
| Opagues | 5% |

The size-frequency distributions of several of the darker layers resemble one another strikingly and have some features in common with the data for the uppermost layer of the core, the Apollo XII contingency sample (12070) and the Apollo XI bulk fines (10084).