GEOLOGIC MAPPING OF EUROPA AT THE REGIONAL SCALE.
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ABSTRACT

Evaluating the potential habitability of Europa requires an understanding of the geology that drives the interaction between the surface and the deeper interior of the body. To this end, we have constructed a global geologic map of Europa at the scale of 1:15M [1] which has been accepted for publication by the USGS and is currently awaiting production. To provide greater insight into the broad global stratigraphic relations, we are currently performing regional-scale mapping (1:2M), with a consistent set of units [e.g. 2] of approximately 10% of the surface that has been imaged at the 100-220 m/pixel and placed in the global-scale context.

The initial results of our regional scale mapping of the Conamara Chaos region (Fig. 1) provides greater insight into the regional plains unit by establishing geological relationships among assemblages of key tectonic features. In comparison to the global units, the regional plains, chaos, and band units can be subdivided into a wider array of outcrop units allowing for a more detailed set of stratigraphic relationships to be identified. The regional units consist of: ridged bands, smooth bands, double ridges, single ridges, chaos, chaos blocks, smooth chaos, knobby chaos, low albedo mantling deposits, high albedo mantling deposits, ridged plains, and smooth ridged plains. The results of this work will provide greater insight into how the icy crust of Europa formed and evolved.


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Figure Caption: Conamara Chaos regional geologic map at the 1:2M scale. The background image is the USGS basemap of Europa.