

### 3C11 Practical 3: Mars's surface features

This practical will provide the experience identifying features on the surface of Mars. Unlike the lunar mapping exercise, where you had to mark out the geological rock units, in this practical you have to produce a detailed map of all the features on the image, including the separate component parts of large features.



located in Elysium Planitia (14.6°S, 184.6°W)

This practical will be marked on the number of features you identify on the map, the accuracy with which you identify them, and any explanation of the features you have shown. Marks will also be awarded for tidily drawn maps, and external research. The region of surface imaged contains *impact craters, volcanism, tectonics and features of both water and wind erosion\**. The largest crater on the image is called Gustav crater, and is approximately 160km in diameter.

You will be given two weeks to complete this practical, and you should note that the mapping can only be completed during the 2 hour practical session, as the images will be taken in at the end of each session. The completed tracing-paper map and any associated explanations you have produced will be collected in on the 2<sup>nd</sup> December, or can be handed in to the departmental office by 5:00pm on the 9<sup>th</sup> December.

\*Mars has extensive erosional features on its surface, but since you won't cover these until the last week of practicals, here is a brief description of the kind of erosional features to be looked for:

*Water* : channels can be cut into the surface, often larger than might be expected by lava, and water will erode the surface it flows over, smoothing it and leaving softened features, often shaping the remaining land so that the direction of the flow can be seen. Groundwater can also spring up from under the surface sapping and eroding the surface, leaving blocks of the surface uneroded.

*Wind*: As wind blows over the surface, it can carry particulate matter with it. This will lead to generalised coloration changes on the surface, wind streaking, and in some places can sweep material up into yardangs (extended parallel lines of material) or dunes. It can also erode away the surface layer, leaving only regions of stronger rock behind.