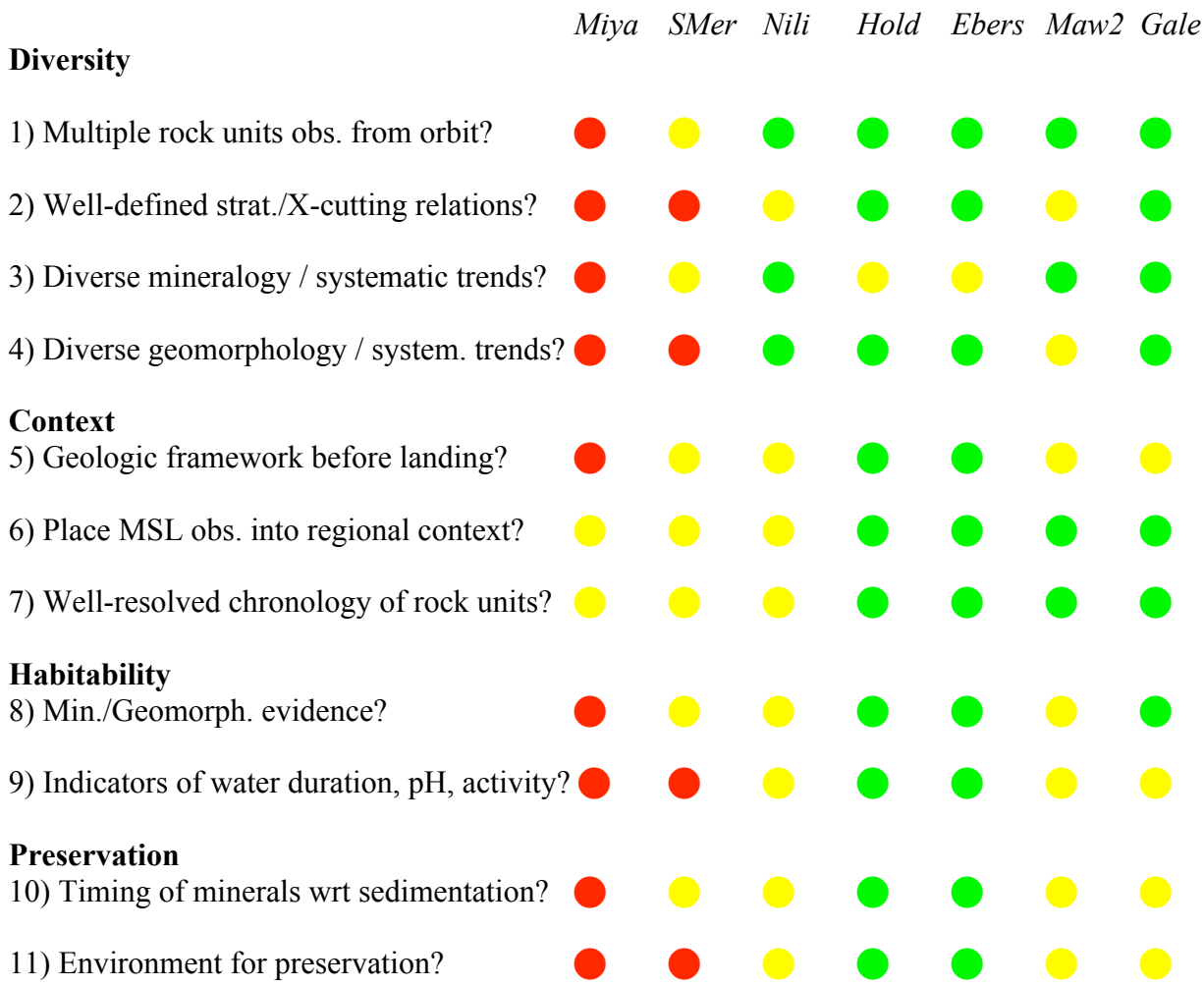
MSL Landing Site Science Criteria – 3rd Workshop



Diversity

1) Can multiple rock units be observed from orbit?
2) Do these units have well defined stratigraphic and/or cross-cutting relationships?
3) Are these units differentiated on the basis of diverse mineralogic features? Are systematic trends present?
4) Are these units differentiated on the basis of diverse geomorphic features? Are systematic trends present?

Context

5) How much of what will be observed by the rover can be placed into a geologic framework before landing?
6) Can local observations be placed into a more general regional context and, if this is possible, how confidently can this be done?
7) How well resolved is the relative chronology of the identified rock units?

Habitability

8) Does mineralogic/geomorphic evidence indicate a compelling habitable environment?
9) Can minerals or geomorphic features detected from orbit be used as reliable indicators of past: duration of water, water pH, water-rock ratio, water activity (salinity)? (GREEN = good for habitability)

Preservation

10) Are the observed mineral phases early and contemporaneous with sedimentation and/or rock alteration? Can this timing be reliably established?
11) Is the inferred habitable environment detrimental to the preservation of organic matter or other biosignatures (e.g. C,S isotopes, trace element enrichments) due to high water/rock ratio and/or oxidizing chemical reactions during diagenesis? (Red = detrimental)