**Where to locate your Mars Base**

**Use the Mars Atlas or the online quadrangles to find the sites listed below. Discuss the pros and cons for each location as a potential human settlement on Mars.**

1. **Lava tube at Pavonis Mons, Tharsis:** Excellent protection from radiation for humans in lava tube caves. Scientific insights into Mars’s volcanic history and planet’s interior and climate. Uncertain access to water for life support. Difficult site for landing and access to lava tubes at high altitude on volcanoes could be challenging.
2. **Arabia Terra, northern highlands:** Plenty of safe landing sites. High scientific interest due to ancient terrain and evidence of water in Mars’s early history. Currently accessible water for life support locked in minerals, so relatively difficult to extract.
3. **Hellas Basin:** Almost certain access to water ice for life support in remnants of ancient glaciers. Safe landing sites some distance away. Crossing glaciers is dangerous.
4. **Valles Marineris:** Daytime temperatures can reach cold, but bearable temperatures for humans. High scientific interest. Possibility that liquid might reach the surface sometimes. Access difficult due to very deep canyon and potential crosswinds.
5. **Edge of north polar ice cap:** Abundant water. Very flat for landing. Continuous daylight in summer half of each year, enabling direct-to-Earth communications (all other sites need relay by orbiters). Continuous darkness in winter half of each year, making it very cold for humans.

[More information](https://www.forbes.com/sites/brucedorminey/2014/12/09/5-top-landing-sites-for-a-manned-mission-to-mars/?sh=304bab823c18).

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| **Consideration** | **1) Lava tube at Pavonis Mons** | **2) Arabia Terra** | **3) Hellas Basin** | **4) Valles Marineris** | **5) North polar ice cap** |
| Access to water and life-support materials |  |  |  |  |  |
| Safety for landing |  |  |  |  |  |
| Safety of environment for humans |  |  |  |  |  |
| Scientific interest |  |  |  |  |  |

Where will you site your Mars base? What is your rationale?

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