LOG 5: Mission to Mars: Mars Resources

Remember that each resident of Mars requires food, water, and 1-100 kilowatts of electricity. What can we find? What can we use? What can we bring from Earth? What resources are on or below the surface.

**Energy Sources on Earth**

**Energy Sources on Mars**

| Solar Energy                                      | 60% of the amount of Earth’s Solar Energy |
| Wind Energy                                       | Global Dust storms could drive a wind turbine |
| Wind speed of 10 meters/sec for power             | Wind speed of 30 meters/sec for power |
| Fossil Fuels (coal, oil, natural gas)             |                                         |
| Hydroelectric Energy                              |                                         |
| Biofuels (such as wood)                           |                                         |
| Geothermal Energy                                 | Possible                                 |
| Nuclear Energy                                    |                                         |

**Geology of Earth**

**Geology of Mars**

- Water covers 71% of Earth’s surface (96.5% of water in oceans)
  - Ice covers 10% of Earth’s surface
- Core is mostly iron with a little nickel
- Mantle and crust of silica rich rocks
- Crust much thinner in oceans:
  - Average crust depth: 40 km
- Energy from radioactive decay
- Active volcanoes

- There is no surface liquid water on Mars
- Above 60°N/S is 50% ice, rest: 20% ice
- Core is nickel, iron, and Sulphur
- Mantle and crust of silica rich rocks
- Crust much thicker than Earth’s 50-125km deep
- Average crust depth: 50-125 km.
- Smaller planet cooled down faster than Earth
- No evidence of recent volcanic activity