

XV. Pluto & its moons

A. One visit (*New Horizons* did a flyby in 2015)

B. Basics

1. Location

2. Orbit & rotation

- Pluto's orbital plane is tilted by 17° , with respect to the plane of the ecliptic**

3. Dwarf planet - has a solid surface

4. Density

5. Day & year

1 Pluto day =

1 Pluto year =

6. Axial tilt

7. 5 known moons

8. No magnetic field

9. Variable albedo

10. Surface temperatures

C. Interior of Pluto

D. Atmosphere of Pluto

1. Pressure

2. Composition

3. ~20 haze layers

E. Pluto's surface geology

1. Color

2. Dark equatorial areas

3. Sputnik Plain - a large, light area (= low, ~rounded region)

4. Bedrock

5. Moderately cratered surface

- oldest surfaces are ~4 Ga
- most landscapes are ~1 Ga
- Sputnik Plain:

6. Large ice sheet - Sputnik Plain is a vast glacier filling a basin

- sublimation pits (N_2 ice turns to N_2 gas, leaving holes)
- valley glaciers flow into the N_2 ice sheet
- sand dunes atop the ice!!

7. Bladed terrain - sharp ridges interpreted as “penitentes”

8. Cryovolcanism

9. Extensional tectonics

F. Moons of Pluto

1. Charon - largest moon of Pluto; ~606 kilometer radius; about half the size of Pluto

- Northern Hemisphere:

- Southern Hemisphere:

- reddish-brown in the northern polar area