Why Variance:

1. Gravitational pull of sun relative to the sun's position (latitude)

2. Gravitational pull of moon relative to sun and earth

24 hours 50 minutes is lunar day length

Tide Producing Force:

Varies directly with mass & inversely with the cube of the distance

Sun 26,000,000 X (times) mass of moon

Sun is in space further out (93 million miles vs. 250 thousand miles)

Moon has 2 1/2(times) force of sun 6 = M/d

Tides - Usually twice per day in rhythmic fashion "greatest waves of the ocean"

Moon & tides - tides like 50 minutes later each day (Tides Charts)

New & Full moon - highest and lowest tides (Spring and Near Tides)

1st & 3rd quarters lowest tides

(Slight lag behind 000)

Boston Harbor: 9-11 feet range - mean is 10 feet - storm surge 13-15 feet

Quadration vs. Syzygy:

There is a variation in tide time and depth daily - Tidal charts/Almanal

(Winds, pressure, land, ect)