

## The Gravitational Impact of the Sun and the Moon on Heavy Mineral Deposits and Dust Particles in Low Gravity Regions of the Earth

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**Abstract :** The Earth's gravity is not uniform. The satellite imageries of the Earth's surface from NASA reveal a number of different gravity anomaly regions all over the globe. When the moon rotates around the earth, its gravity has a major physical influence on a number of regions on the earth. This physical change can be seen by the tides. The tides make sea levels high and low in coastal regions. During high tide, the gravitational force of the Moon pulls the Earth's gravity so that the total gravitational intensity of Earth is reduced; it is further reduced in the low gravity regions of Earth. This reduction in gravity helps keep the suspended particles such as dust in the atmosphere, sand grains in the sea water for longer. Dramatic differences can be seen from the floating dust in the low gravity regions when compared with other regions. The above phenomena can be demonstrated from experiments. The experiments have to be done in high and low gravity regions of the earth during high and low tide, which will assist in comparing the final results. One of the experiments that can be done is by using a water filled cylinder about 80 cm tall, a few particles, which have the same density and same diameter (about 1 mm) and a stop watch. The selected particles were dropped from the surface of the water in the cylinder and the time taken for the particles to reach the bottom of the cylinder was measured using the stop watch. The times of high and low tide charts can be obtained from the regional government authorities. This concept is demonstrated by the particle drop times taken at high and low tides. The result of the experiment shows that the particle settlement time is less in low tide and high in high tide. The experiment for dust particles in air can be collected on filters, which are cellulose ester membranes and using a vacuum pump. The dust on filters can be used to make slides according to the NOHSC method. Counting the dust particles on the slides can be done using a phase contrast microscope. The results show that the concentration of dust is high at high tide and low in low tide. As a result of the high tides, a high concentration of heavy minerals deposit on placer deposits and dust particles retain in the atmosphere for longer in low gravity regions. These conditions are remarkably exhibited in the lowest low gravity region of the earth, mainly in the regions of India, Sri Lanka and in the middle part of the Indian Ocean. The biggest heavy mineral placer deposits are found in coastal regions of India and Sri Lanka and heavy dust particles are found in the atmosphere of India, particularly in the Delhi region.

**Keywords :** gravity, minerals, tides, moon, costal, atmosphere

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