



HERE.



THERE.



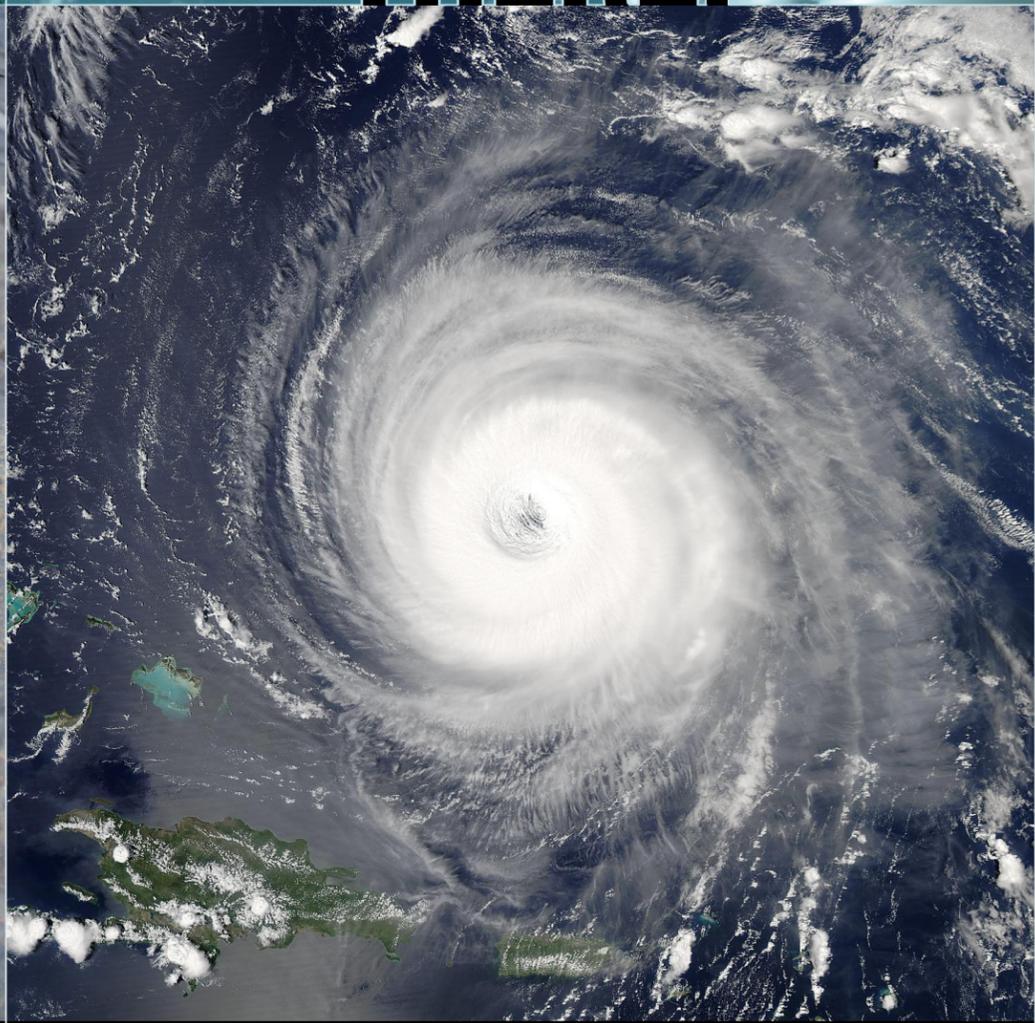
EVERYWHERE.



Drain.

When water is pulled downward by gravity, it spins faster near the drain so that the angular momentum is conserved. Think skaters bringing in their arms to rotate more rapidly. This increase in speed helps generate the spiral structure in the flow. The direction of the spin is mainly determined by the shape of the structure and the initial direction of the water.

(Credits: Wikimedia Commons – Shutino)



Hurricane.

As a storm forms and intensifies, winds are pulled inward and pick up speed because of the conservation of angular momentum. The initial rotation of a hurricane is determined by what is known as the Coriolis Effect . Because the Earth rotates about an axis, different points on the Earth's surface will rotate at different speeds. Points on the equator go the fastest and points at the pole are stationary. This difference in speed imparts a rotation to air flowing into regions of low pressure, like those of a hurricane.

(Credits: Jacques Desclotres, MODIS Land Rapid Response Team at NASA GSFC)



M101.

The formation of a so-called spiral galaxy involves the collapse of an enormous cloud of gas. To conserve angular momentum, a rotating disk results. The source of the familiar spiral pattern is thought to be density waves that pass over the disk. As the density wave passes over a region, the gas is condensed, resulting in the formation of bright stars in a spiral pattern.

(Credits: X-ray: NASA/CXC/JHU/K. Kuntz et al.; Optical: NASA/ESA/STScI/JHU/K. Kuntz et al; IR: NASA/JPL-Caltech/STScI/K. Gordon)

SPIRALS IN NATURE The common spiral shape immediately brings to view the action of rotation. Water winds its way down the drain in a sink. Moist air spirals its way into the low-pressure center of a hurricane. Even the rotation of a galaxy imprints its structure in the form of dense spiral arms that trace regions of star formation. The common thread for all of these three things is angular momentum, a physical principle that remains constant with time for a spinning object and applies over all scales.

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**BECAUSE WHAT HAPPENS HERE,
HAPPENS THERE,
HAPPENS EVERYWHERE.**

