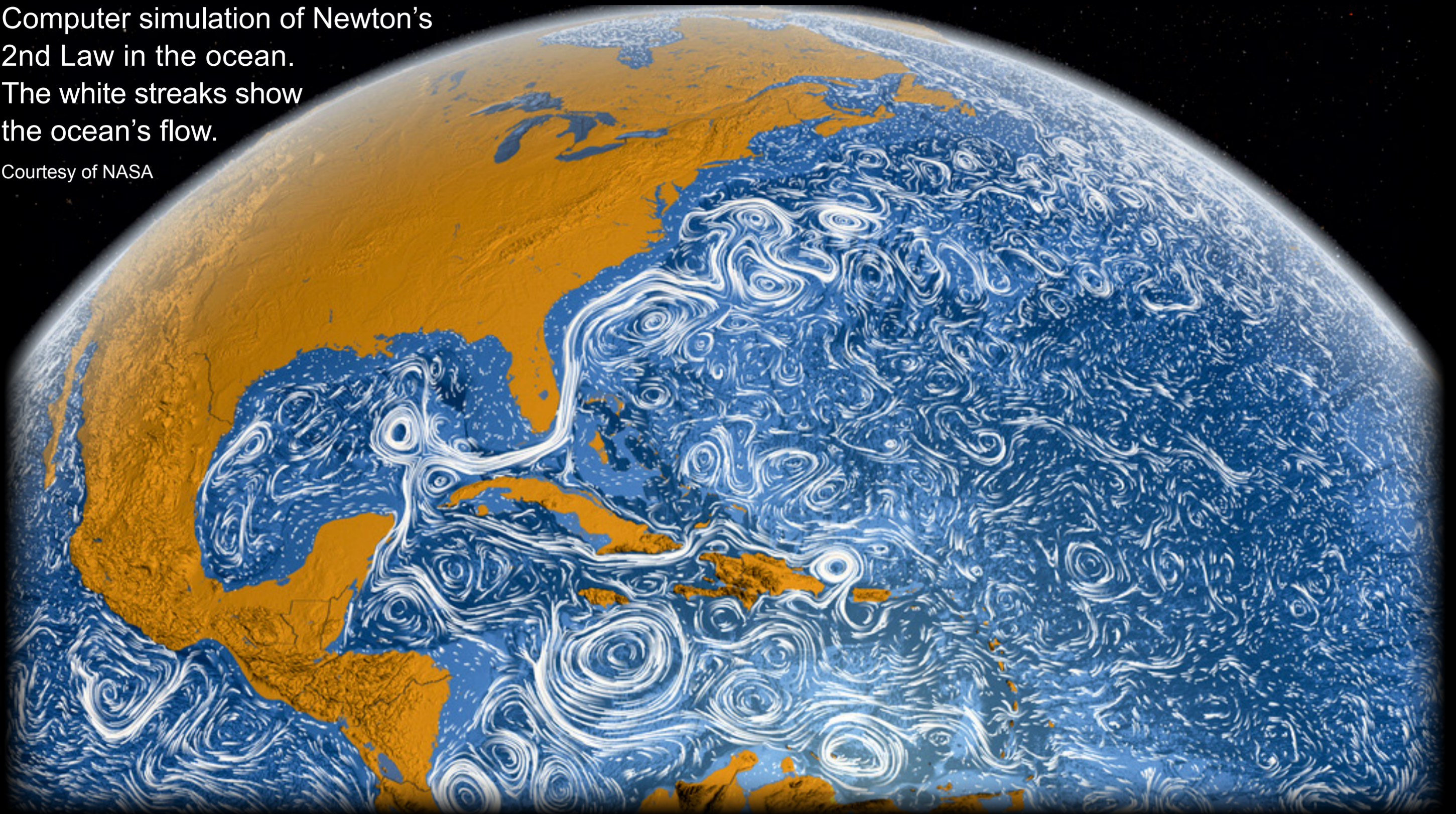


Mathematics and ocean currents

Computer simulation of Newton's 2nd Law in the ocean.
The white streaks show the ocean's flow.

Courtesy of NASA



Ocean currents are governed by Newton's 2nd Law on a rotating planet

$$-fV = -\frac{1}{\rho} \frac{\partial P}{\partial x}$$

$$fU = -\frac{1}{\rho} \frac{\partial P}{\partial y}$$

Mathematics and observations at sea are combined to understand ocean flow

Equation: a simple force balance between the effect of the Earth's rotation (left hand side) and slopes in the sea surface (right hand side) can explain much of the ocean's circulation patterns.

