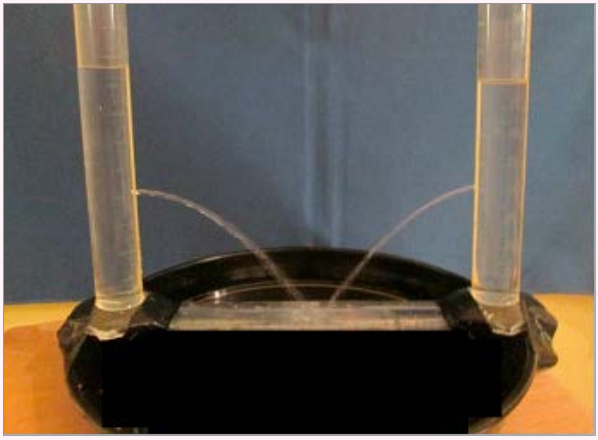
Deflection of a water jet

Coriolis effect with water and a turntable (Italy)

Background

From our study of Geography we know that if the Earth didn't rotate, winds would travel either north or south due to differences in temperature and pressure at different latitudes. But since the Earth does rotate, the Coriolis force deflects these winds to the right in the Northern hemisphere and to the left in the Southern hemisphere.



You will need...

- ✓ A turntable (whether motorised like an vinyl record player, or hand-spun like a cheese board)
- ✓ A circular tray,
- ✓ Two small graduated cylinders
- ✓ glue
- ✓ Two cocktail sticks
- ✓ Water.

Follow these steps

1. Drill a tiny hole at the same height in each of the two graduated cylinders. Plug both holes with cocktail sticks.
2. Fix the graduated cylinders to the tray with glue.
3. Fix the tray to the turntable with glue.
4. Fill both graduated cylinders to the same height with water.
5. Remove both cocktail sticks simultaneously and immediately set the turntable spinning.

So what happened?

The downward pressure within each tower of water causes two jets of water to spurt out as shown and the Coriolis effect is observable as the turntable spins.

What next?

Reset the experiment and spin the table in reverse.

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