

# Cyclones and the Earth's Magnetic Field

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**Abstract. The purpose of this paper is to illustrate, by examining various rotational scenarios, that the cyclonic behavior in the atmosphere and in the ocean currents cannot be explained by the conventional Coriolis force approach. Instead, it must be explained by fine-grain Coriolis force in the Earth's magnetic field.**

## The Earth's Magnetic Field

I. The cause of the Earth's magnetic field remains somewhat of a mystery. The fact that the Earth's magnetic axis is so closely aligned with the Earth's rotational axis tends to point with reasonable certainty to the Earth's rotation as being the predominant cause. The 'Barnett Effect' [1] must almost certainly contribute towards the Earth's magnetic field.

We also have the additional evidence of the slight difference in alignment between the Earth's rotational axis and the Earth's magnetic axis, and the fact that the magnetic axis precesses with the Earth's diurnal rotation. This leaves us to conclude that an additional ferromagnetic source for the Earth's magnetic field must be embedded inside the Earth. This ferromagnetic alignment must also be related to the Earth's rotation as well as to the sum of all the rotational, orbital and precessional motions going on in the solar system.

## **The Entrained Electric Sea**

**II.** The atmosphere, the oceans and the Earth's magnetic field all partake in the rotation of the Earth. As such we should have no reason whatsoever to conclude that the Coriolis force will be invoked on local movements of the ocean or the atmosphere. The Coriolis force is traditionally taught to be a fictitious force that occurs when observation takes place from a rotating frame of reference. The Foucault pendulum experiment at the Earth's poles is a classic example. The Foucault pendulum at the poles does not partake in the Earth's rotation and so, as viewed from the Earth, the pendulum will appear to be experiencing a fictitious tangential force which rotates the plane of swing of the pendulum.

At the equator, this same pendulum does partake in the Earth's rotation and so no Coriolis force occurs. At all latitudes between the equator and the poles, a partial Coriolis force occurs proportionately to the degree that the pendulum partakes in the Earth's rotation.

With regard to the atmosphere and the ocean currents we do nevertheless observe cyclonic patterns which can be mathematically attributed to the Coriolis force. This is despite the fact that the oceans and the atmosphere are partaking in the Earth's rotation. The matter is yet further complicated by the fact that the cyclonic behavior in the weather patterns and in the ocean currents is not fictitious. It is very real and it can be observed from the Moon.

As such, we have a dilemma.

## **Rotational Motion**

**III.** The Earth's magnetic field is a solenoidal alignment of aether vortices within a sea of rotating electron-positron dipoles that we will refer to as 'The

Electric Sea'. The phenomenon of stellar aberration combined with the 1887 Michelson-Morley experiment tells us that the electric sea is entrained with the Earth in its translational motion around the Sun.

However, the 1925 Michelson-Gale experiment gives us a slight indication that the electric sea may not be partaking in the rotation of the Earth. This idea is further backed up by the fact that bar magnets do not invoke the  $q\mathbf{v}\times\mathbf{B}$  force when they are rotating. A rotating magnet only ever invokes the electromagnetic  $\partial\mathbf{A}/\partial t$  force, where  $\mathbf{A}$  is the magnetic vector potential and is related to aether field velocity.  $\mathbf{A}$  and the magnetic flux density  $\mathbf{B}$  are related to each other by the vorticity equation  $\text{curl } \mathbf{A} = \mathbf{B}$ .

If the electric sea is not partaking in the Earth's rotation, then the aligned sea of aether vortices which constitutes the magnetic field could account for the Coriolis force in the ocean currents and the weather patterns. Rather than dealing with one large scale rotating frame of reference, we are dealing with a sea of fine-grain rotating space which actually induces a real Coriolis force.

## Maxwell's Vortex Sea

IV. In his 1861 paper entitled 'On Physical Lines of Force',

[http://vacuum-physics.com/Maxwell/maxwell\\_oplf.pdf](http://vacuum-physics.com/Maxwell/maxwell_oplf.pdf)

Maxwell modeled the magnetic field hydrodynamically using a sea of tiny fine-grain aether vortices. At equation (5) in part 1, he obtained a Coriolis force expression with which he used to derive Ampère's Circuital Law at equation (9). The reciprocal of this Coriolis force expression in which the cause and effect have been reversed appears at equation (77) and is nowadays known as the Lorentz force, although Maxwell clearly only intended it to be used for electromagnetic induction. Nowadays however, the  $\mathbf{v}\times\mathbf{B}$  effect is never overtly advertised in electromagnetic induction and yet on the other hand it is used to account for the force on a current carrying wire.

Maxwell did not use the  $\mathbf{v}\times\mathbf{B}$  force to account for the force on a current carrying wire. Instead he used fine-grain centrifugal force. It is likely that the use of  $\mathbf{v}\times\mathbf{B}$  for the force on a current carrying wire is an approximation

which only becomes accurate in the ideal scenario in which the test wire has got no magnetic field of its own. In normal circumstances, the  $\mathbf{vXB}$  force can not possibly account for the transfer of energy between potential and kinetic that is associated with magnetic force and so Maxwell's now disused fine-grain centrifugal and Coulomb force explanations for magnetic force are more likely to be the correct explanations.

At any rate, the  $\mathbf{vXB}$  force is clearly a Coriolis ingredient in electromagnetic induction. See section **VI** of 'The Coriolis Force in Maxwell's Equations' at,

<http://www.wbabin.net/science/tombe4.pdf>

## Conclusion

**V.** The Earth's magnetic field can be the only possible explanation for the cyclonic effects in the weather patterns and the ocean currents. This is indeed the Coriolis force but not the large scale fictitious effect as is commonly believed. It must be a very real fine-grain Coriolis effect arising out of motion through a sea of solenoidally aligned tiny vortices.

The fact that all atomic and molecular matter has got an inbuilt negative electric charge has already been dealt with in 'Gravity Reversal and Atomic Bonding'. See,

<http://www.wbabin.net/science/tombe6.pdf>

## References

[1] Barnett S. J., "*Magnetization by Rotation*" Physical Review 6/4 (1915) 239 - 270