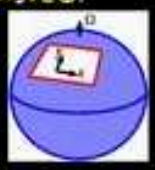
File Play View Content Help

real

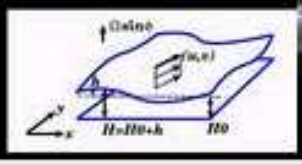
浅水方程式系

回転する球面上の領域を局所的に考える.

$$\frac{\partial u}{\partial t}+u\frac{\partial u}{\partial x}+v\frac{\partial u}{\partial y}-fv=-g\frac{\partial h}{\partial x},$$
$$\frac{\partial v}{\partial t}+u\frac{\partial v}{\partial x}+v\frac{\partial v}{\partial y}+fu=-g\frac{\partial h}{\partial y},$$
$$\frac{\partial h}{\partial t}+\frac{\partial}{\partial x}(uH)+\frac{\partial}{\partial y}(vH)=0,$$
$$H=H_0(x,y)+h.$$



- 運動の水平スケールに比べて浅い → 深さ方向に平均した運動
- 回転の鉛直方向成分のコリオリ力のみ働く (f=2Ωsinφ)
- コリオリパラメター f 一定 → f 面近似
- f の緯度変化を考慮 (f=f0+βy) → β面近似



take5

Clip info: GFD seminer 2001 winter No.3

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