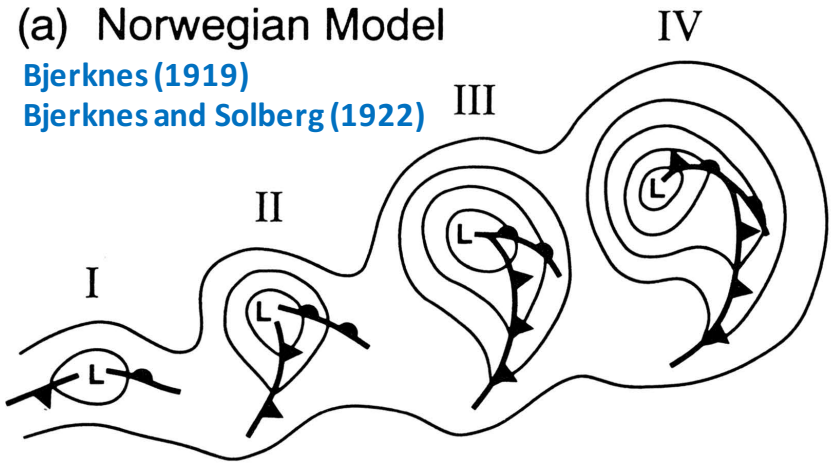
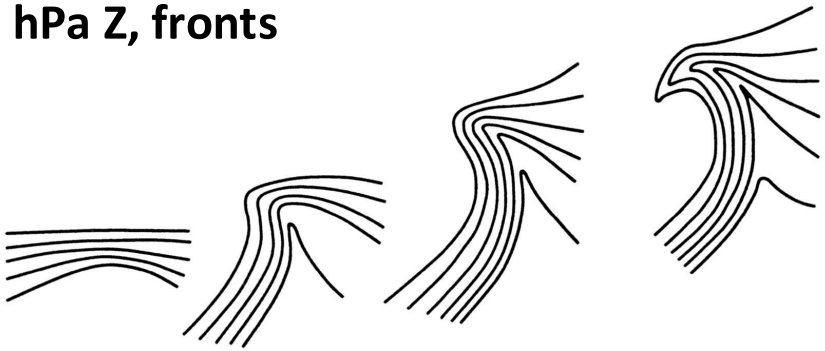
Conceptual Models of Cyclone Evolution



850 hPa Z, fronts



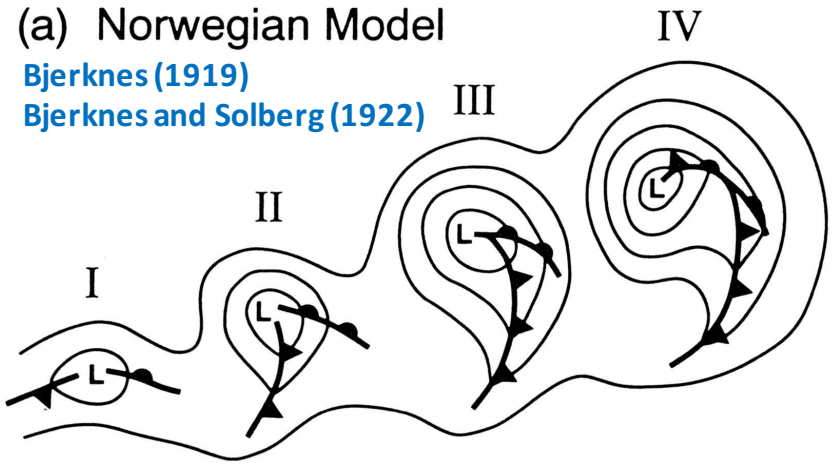
850 hPa θ

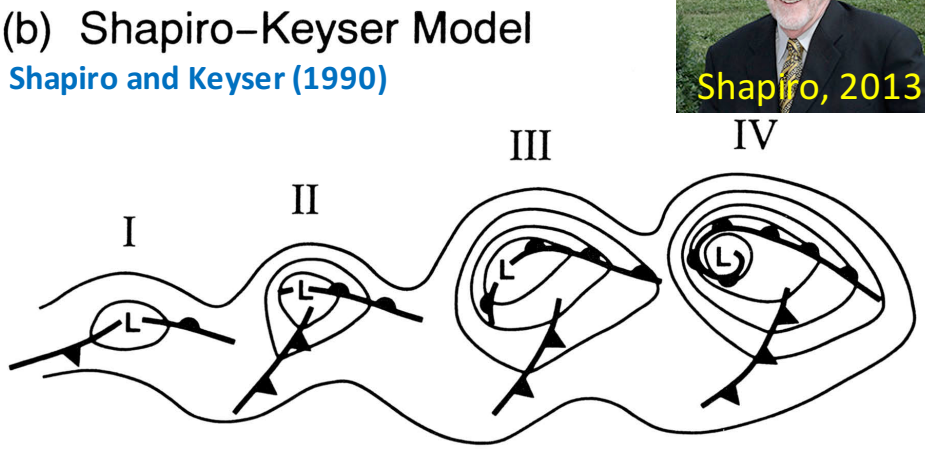
Fig. 15 from Schultz et al. (1998)

Bergen, Norway, 1934

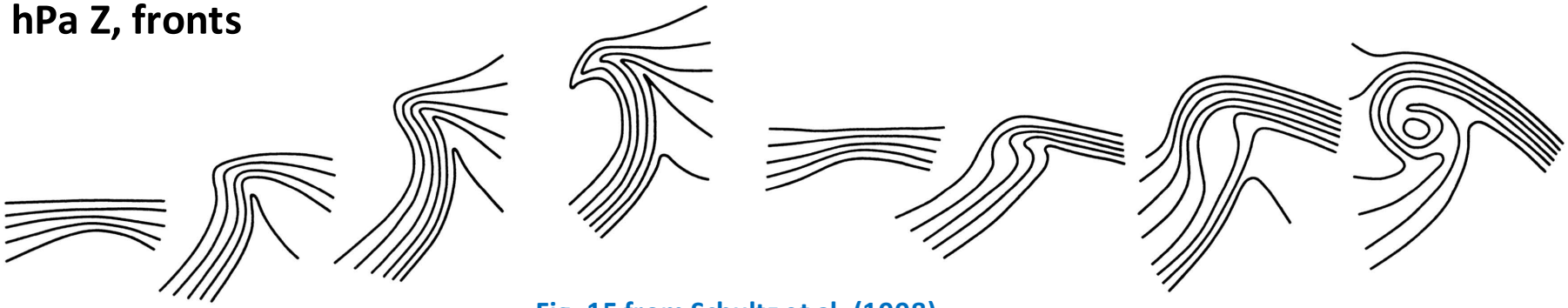
I: incipient frontal cyclone
II: narrowing warm sector
III: narrowing warm sector
IV: occlusion

Conceptual Models of Cyclone Evolution





850 hPa Z, fronts



850 hPa θ

Fig. 15 from Schultz et al. (1998)

I: incipient frontal cyclone
II: narrowing warm sector
III: narrowing warm sector
IV: occlusion

I: incipient frontal cy
II: frontal fracture
III: frontal T-bone
IV: warm seclusion

Keyser, early 2010s

Example of Oceanic Cyclone: 10–11 September 1978 (QE II storm)

Surface Analysis at 1200 UTC 10 Sept 1978

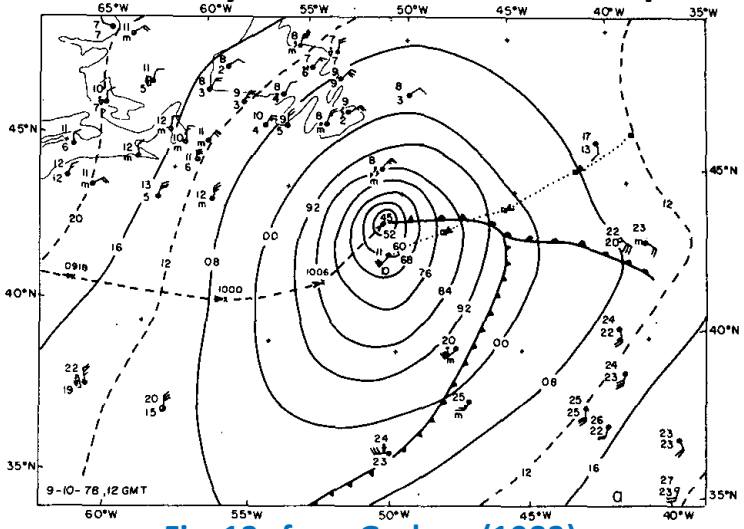


Fig. 12a from Gyakum (1983)

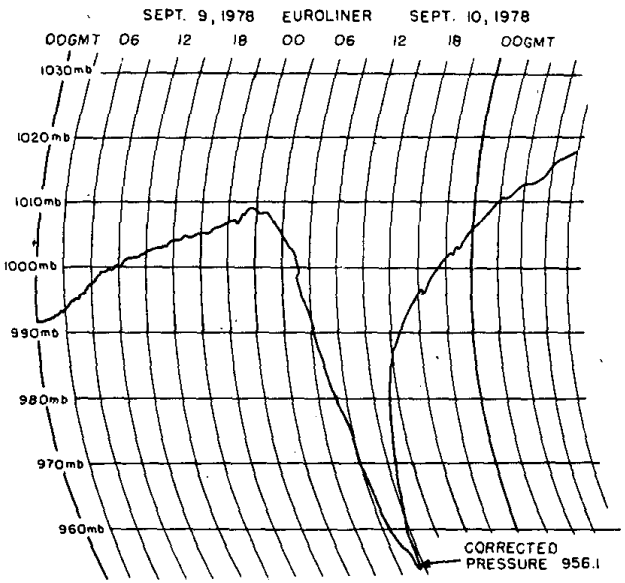


Fig. 1 from Gyakum (1983)

24-h MM5 Simulation of QEII storm: SLP and 2-m T at 12Z/10 Sept 1978

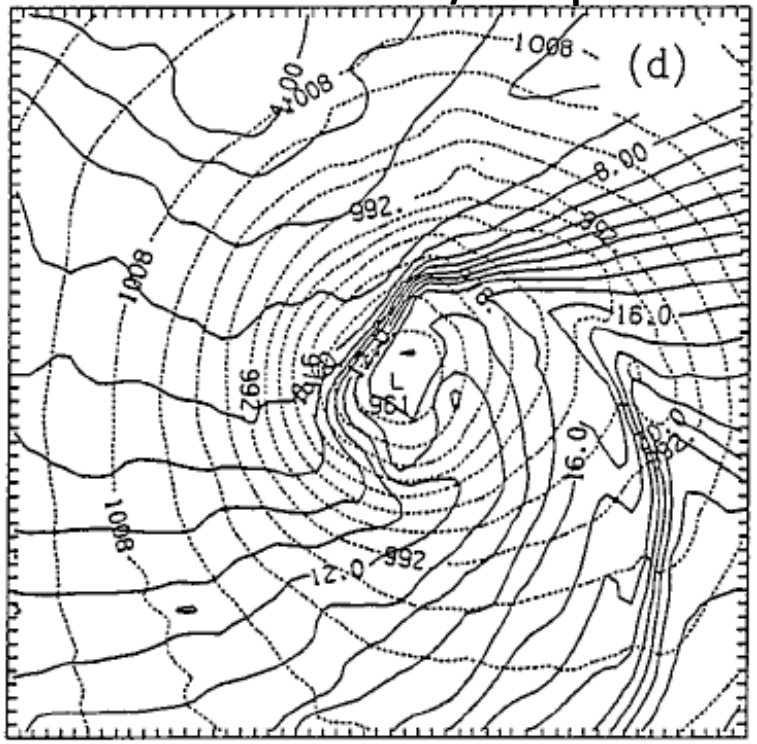
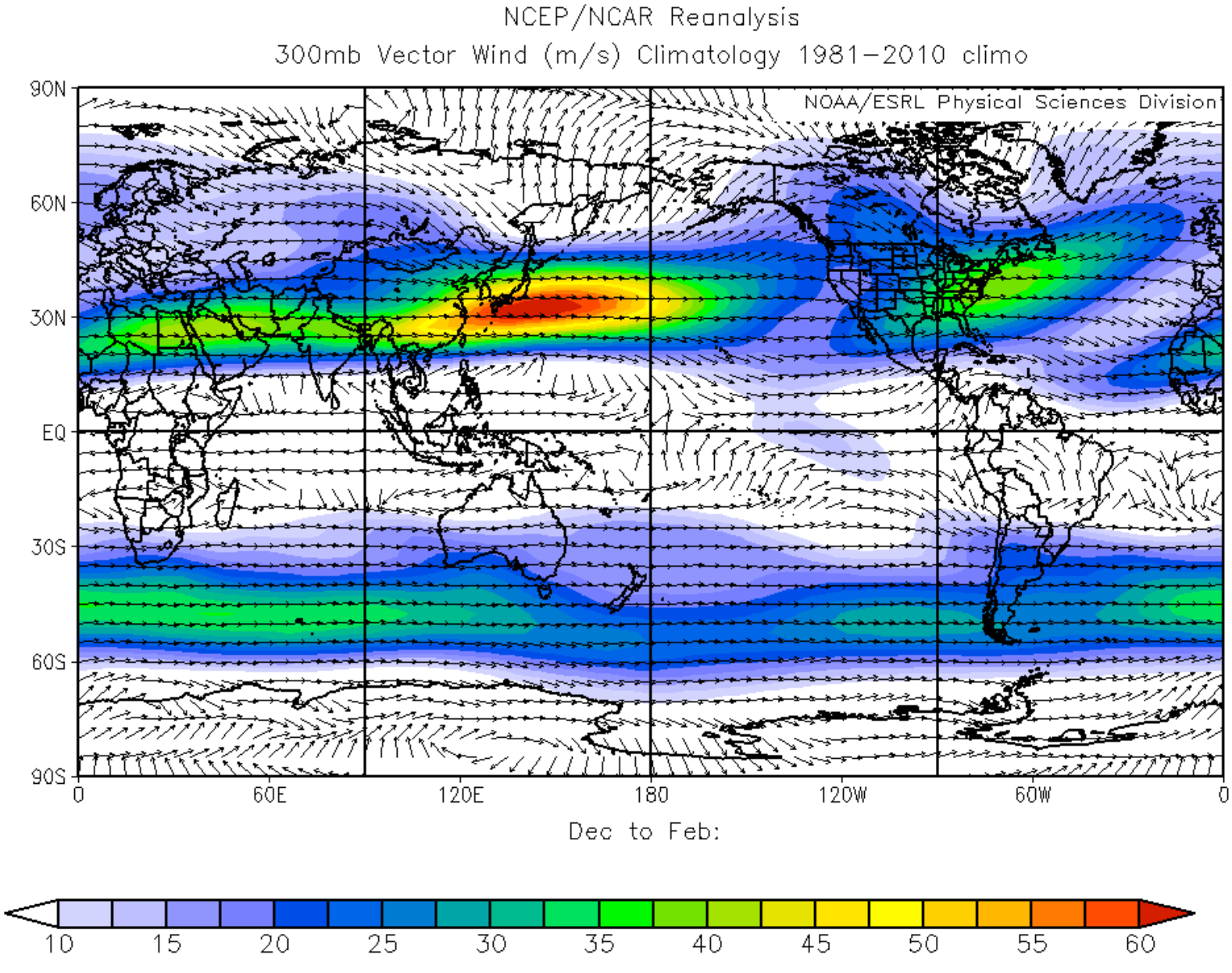


Fig. 10.14d from Shapiro and Keyser (1990)

- **QE II storm was a Shapiro-Keyser cyclone that qualified as a meteorological bomb**
- **QE II storm produced hurricane-force winds, extreme pressure gradients, and a warm core structure**

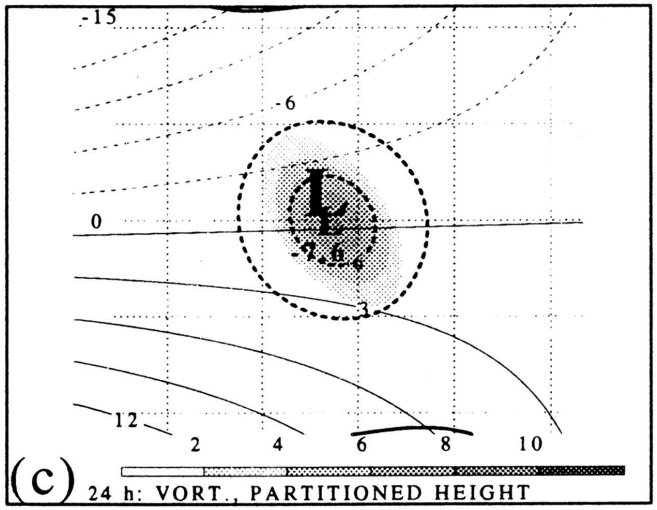
Mean Upper-Level Jet for DJF

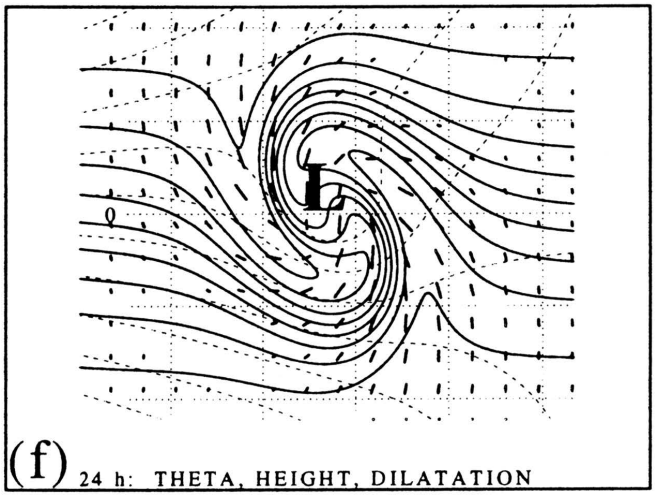


Idealized Vortex Evolution in Confluent/Diffluent Flows

Norwegian cyclone in diffluent jet exit region

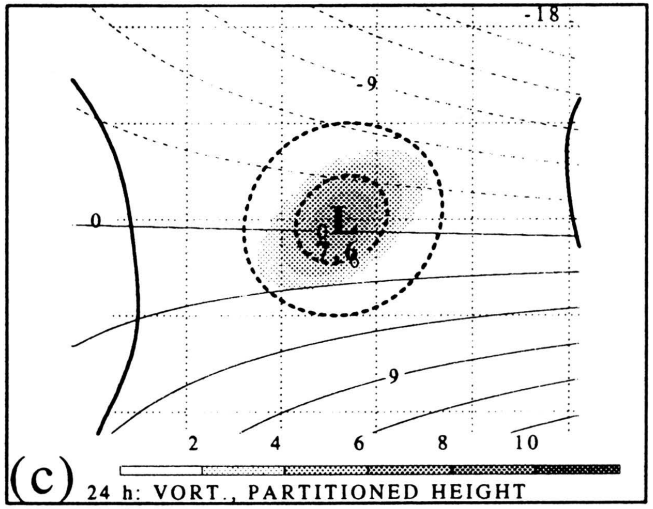
like eastern Atlantic

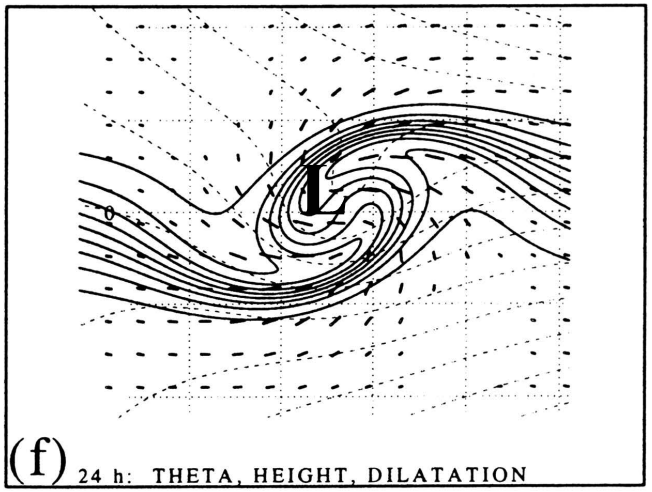




Shapiro-Keyser cyclone in confluent jet entrance region

like western Atlantic





Schultz, late 2000s

Figures from Schultz et al. (1998)

Cyclone Airstreams