

Super DARN symposium, Aug. 9-10, NIPR

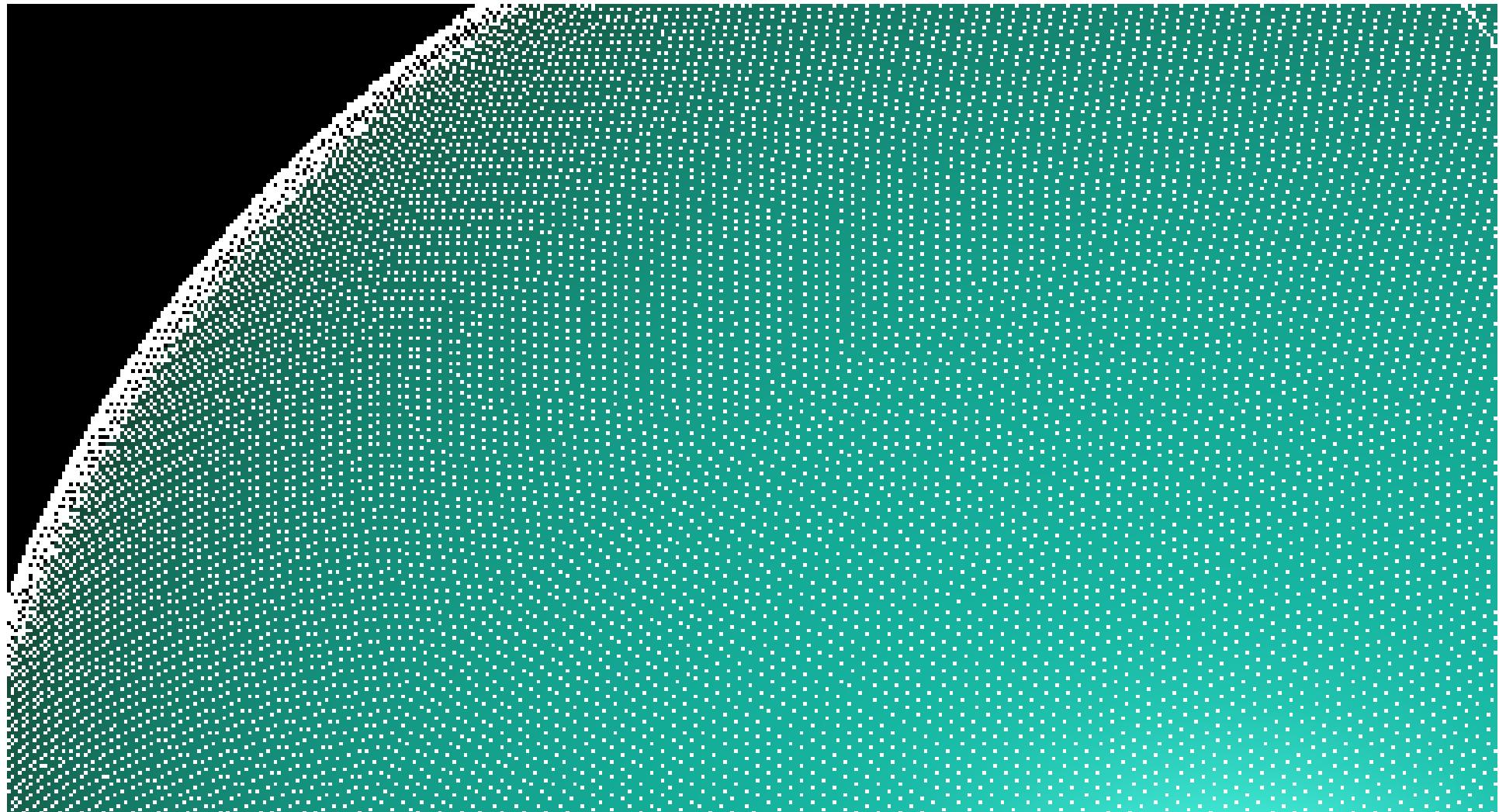
# Reproduction of the substorm by the high-resolution global simulation

T. Tanaka  
Professor emeritus, Kyushu-University

cdd/nict6  
login/nict6/energy  
login/nict6/onset

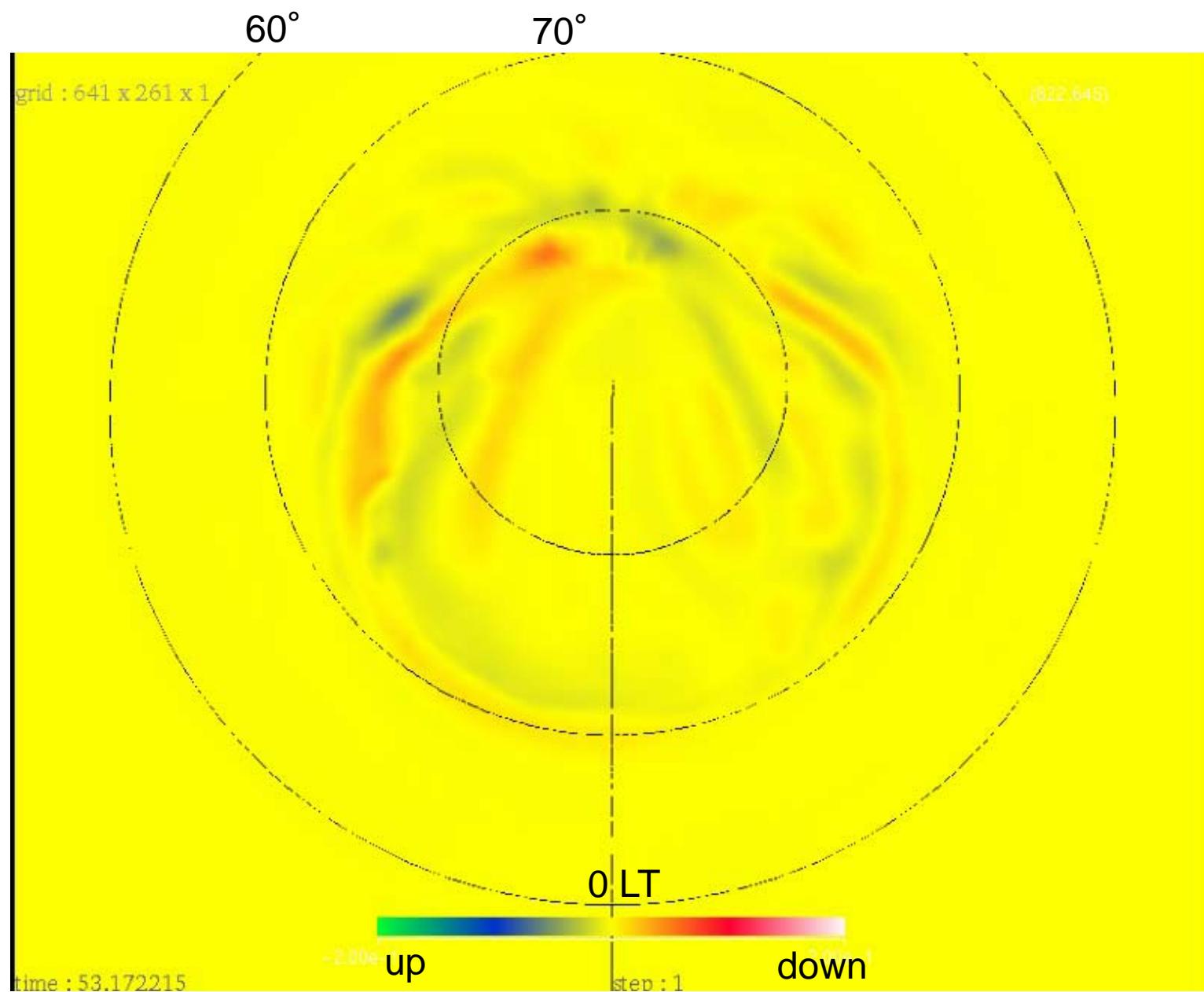
# 12面体分割格子／高解像度シミュレーション

Unstructured grid / High-resolution simulation

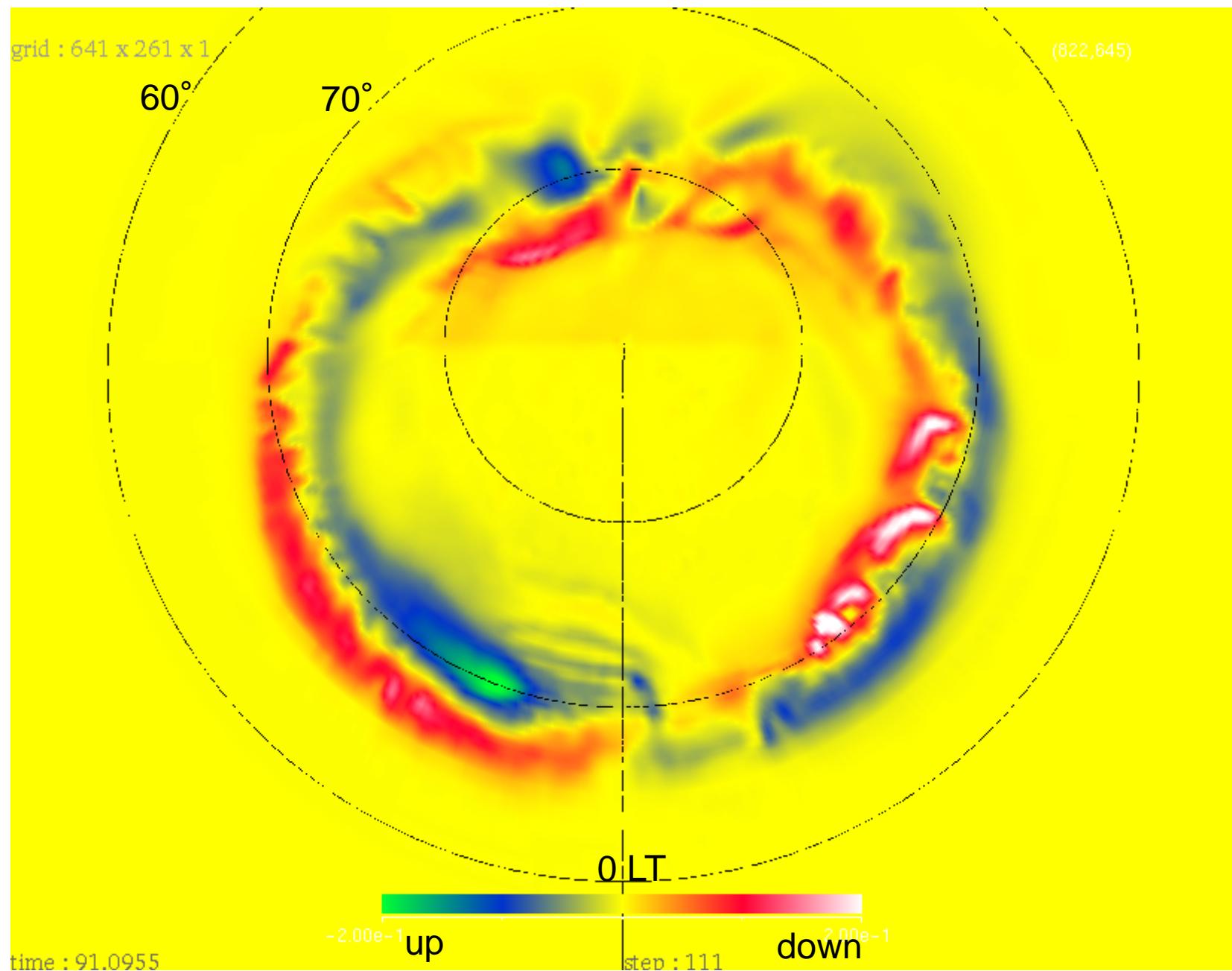


# High-resolution simulation of the substorm FAC

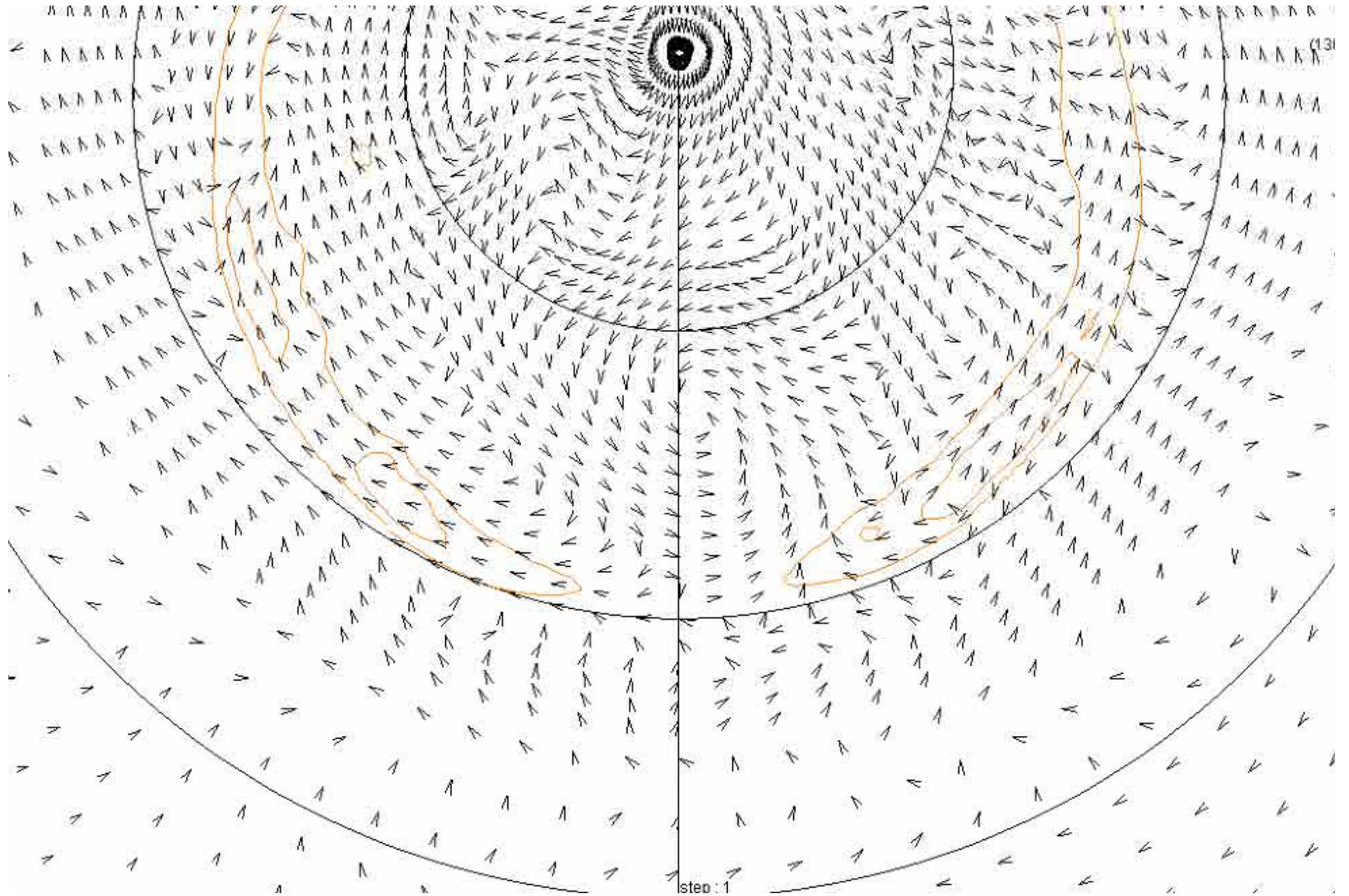
movie



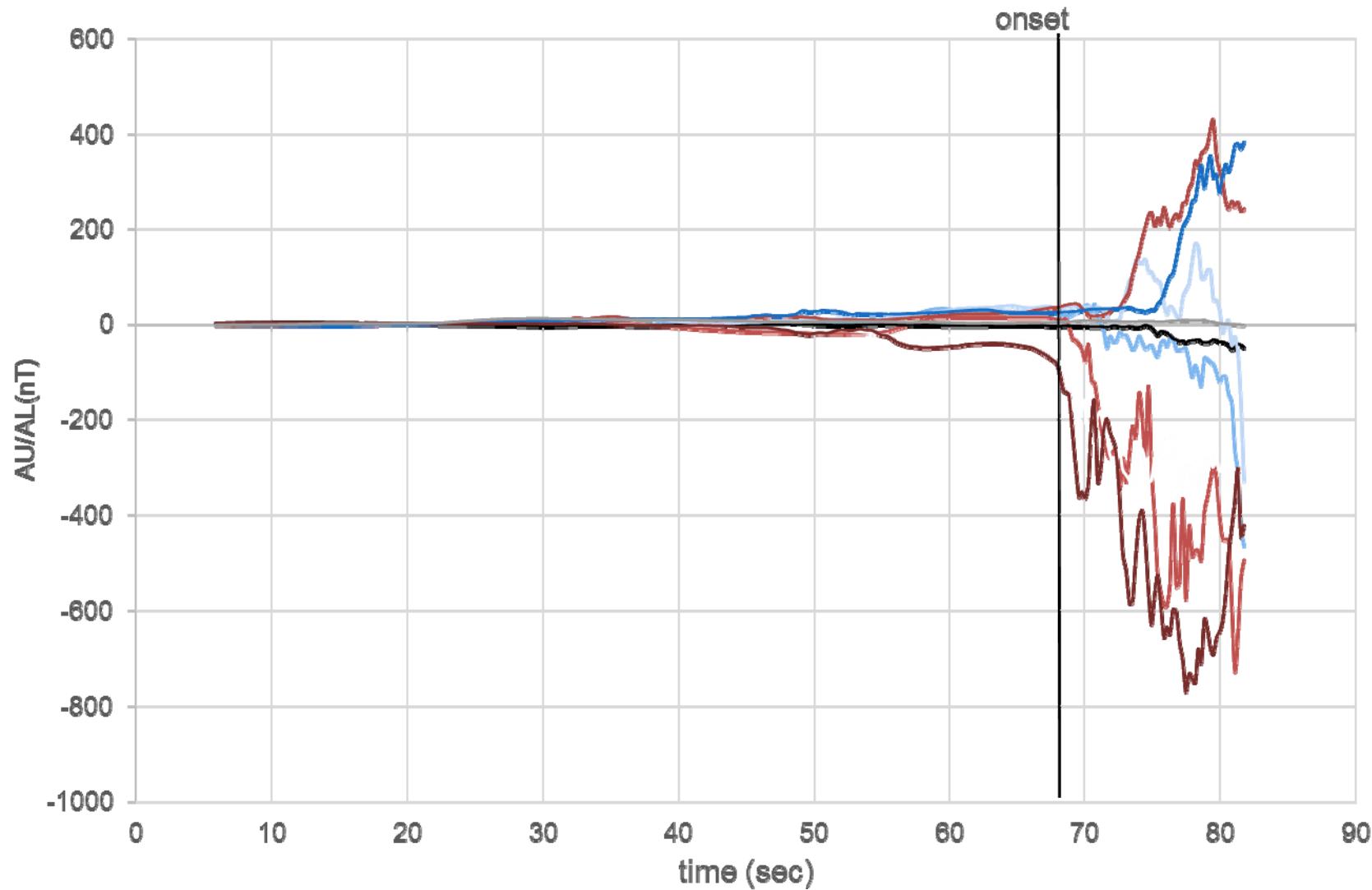
## Expansion phase FAC

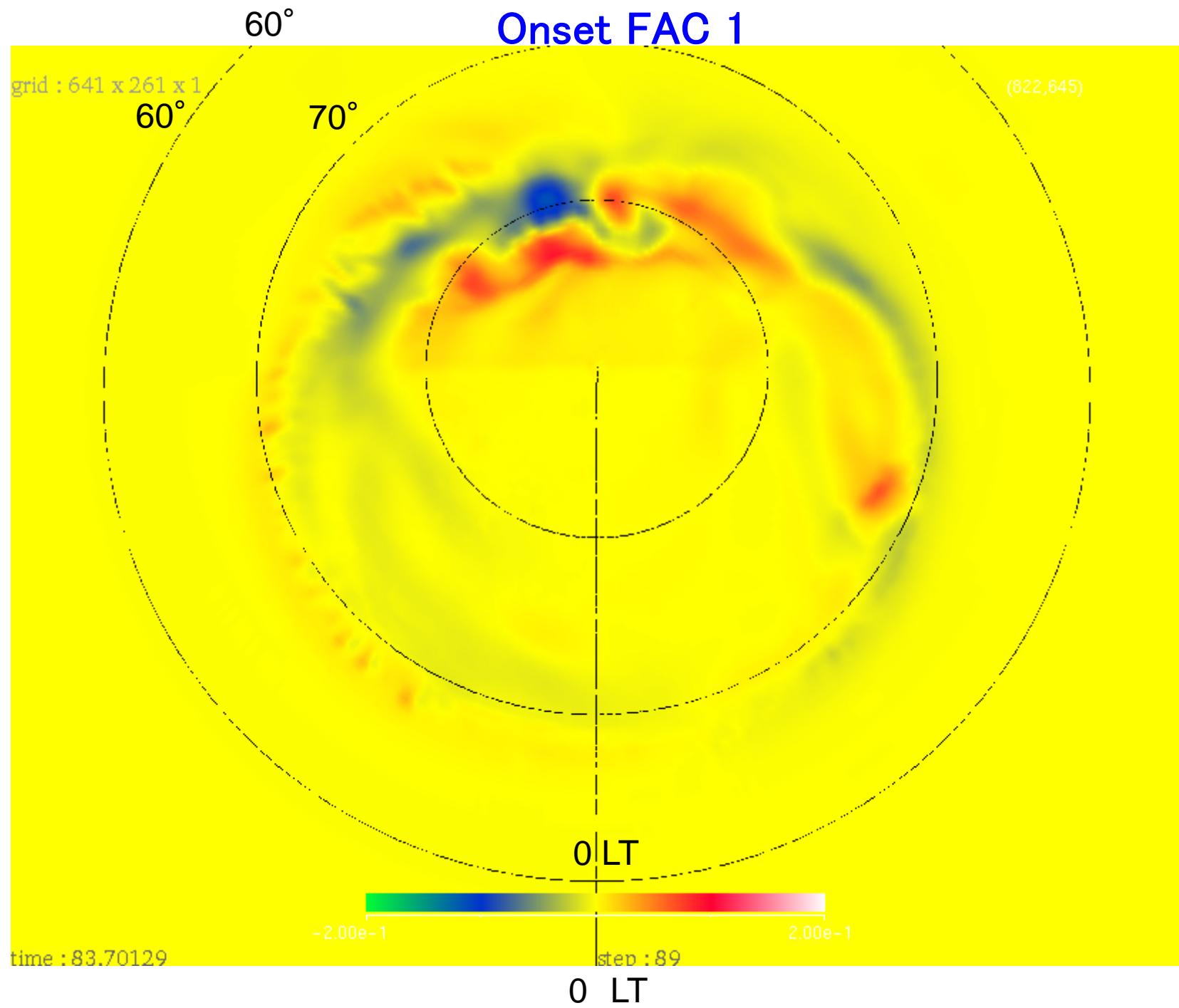


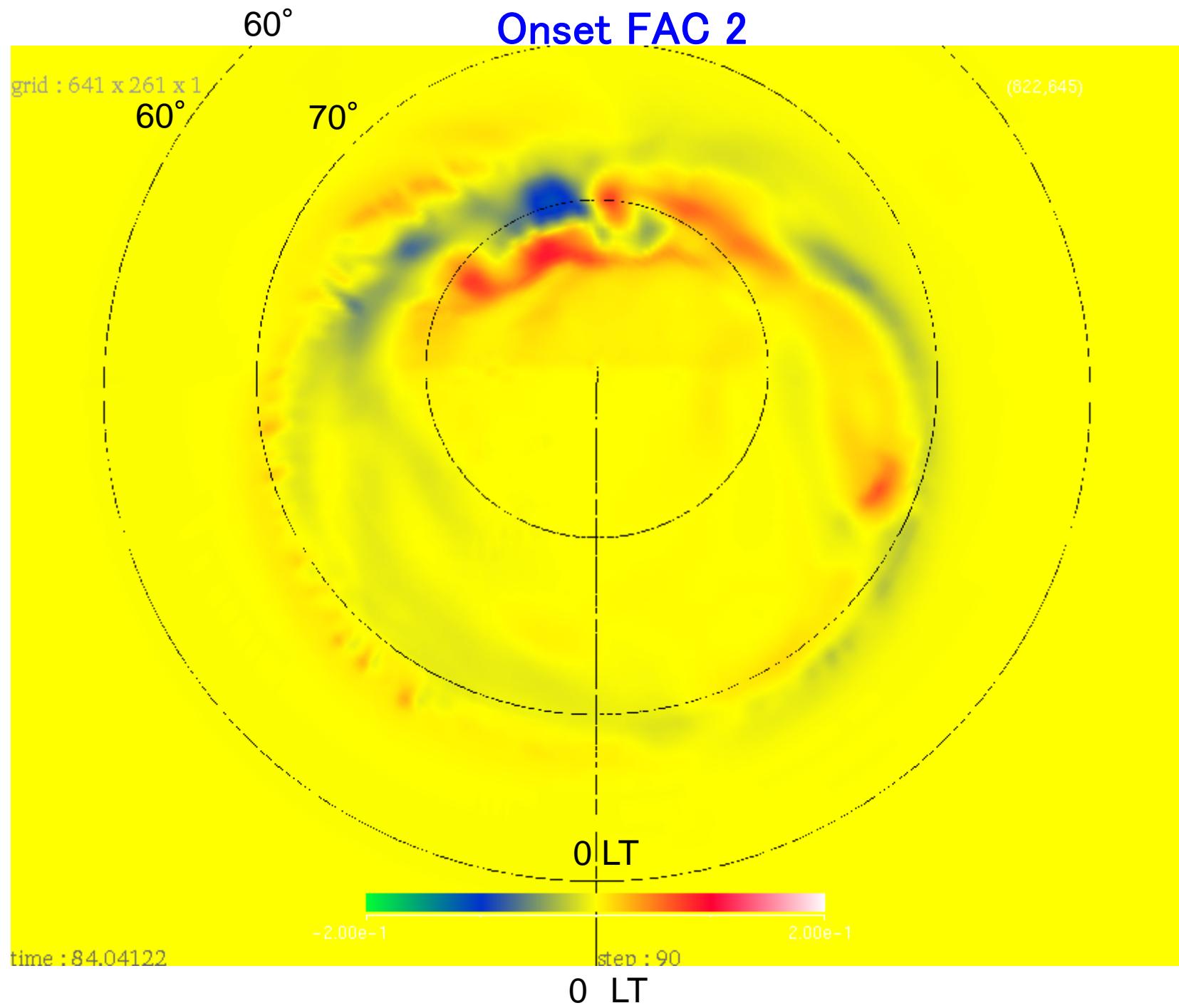
## Ionospheric current system associated with the substorm

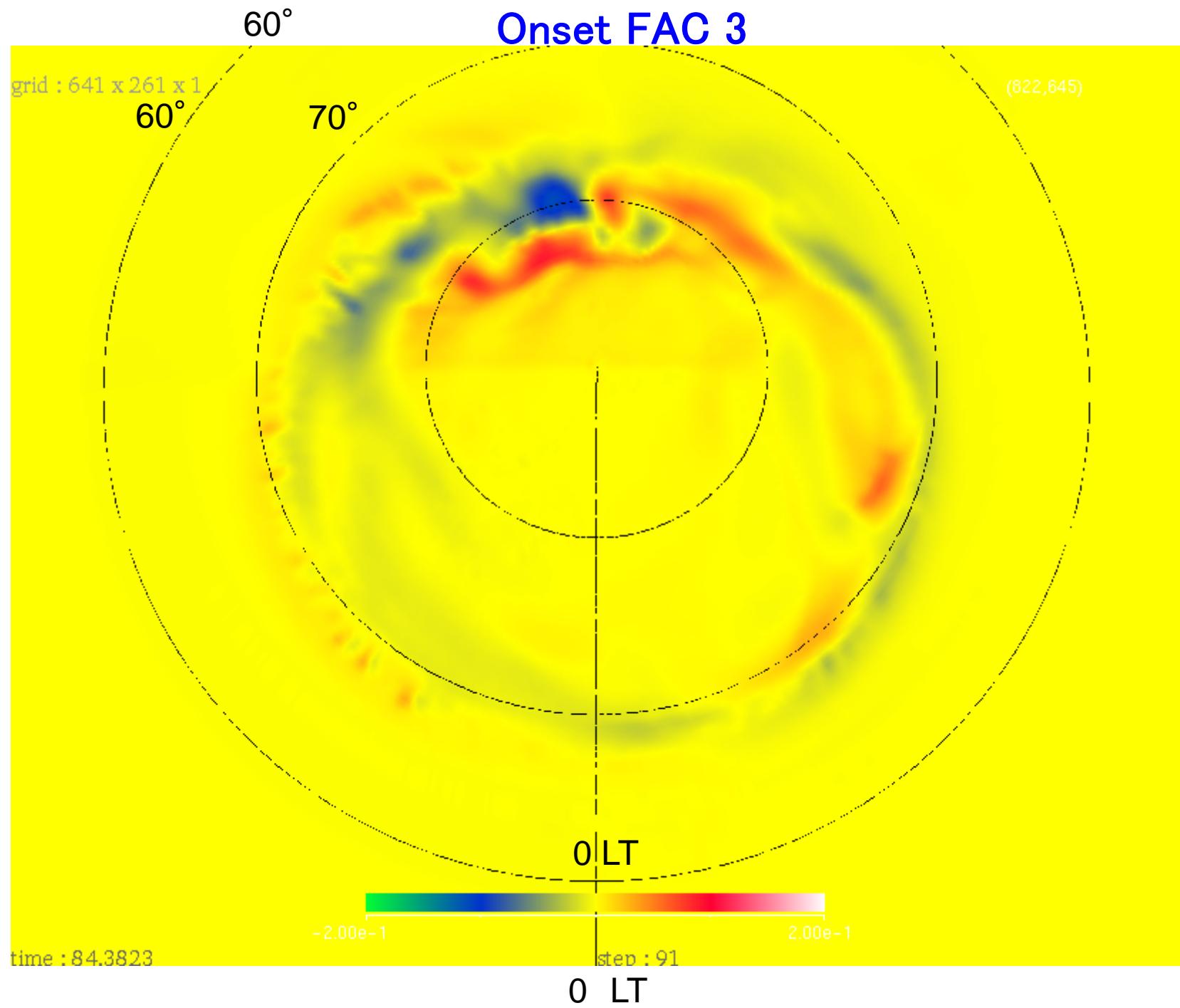


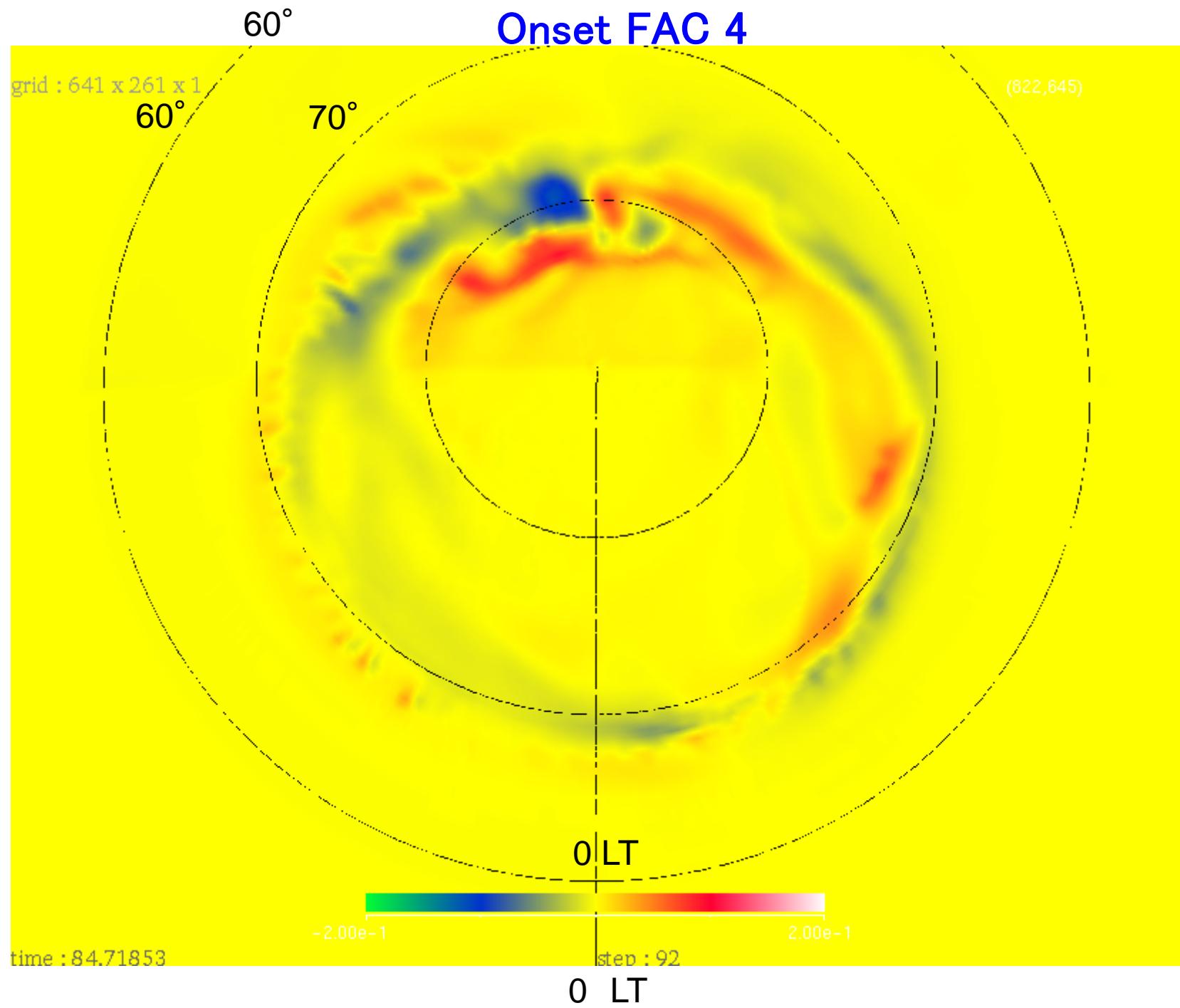
## Simulated AU and AL indecies

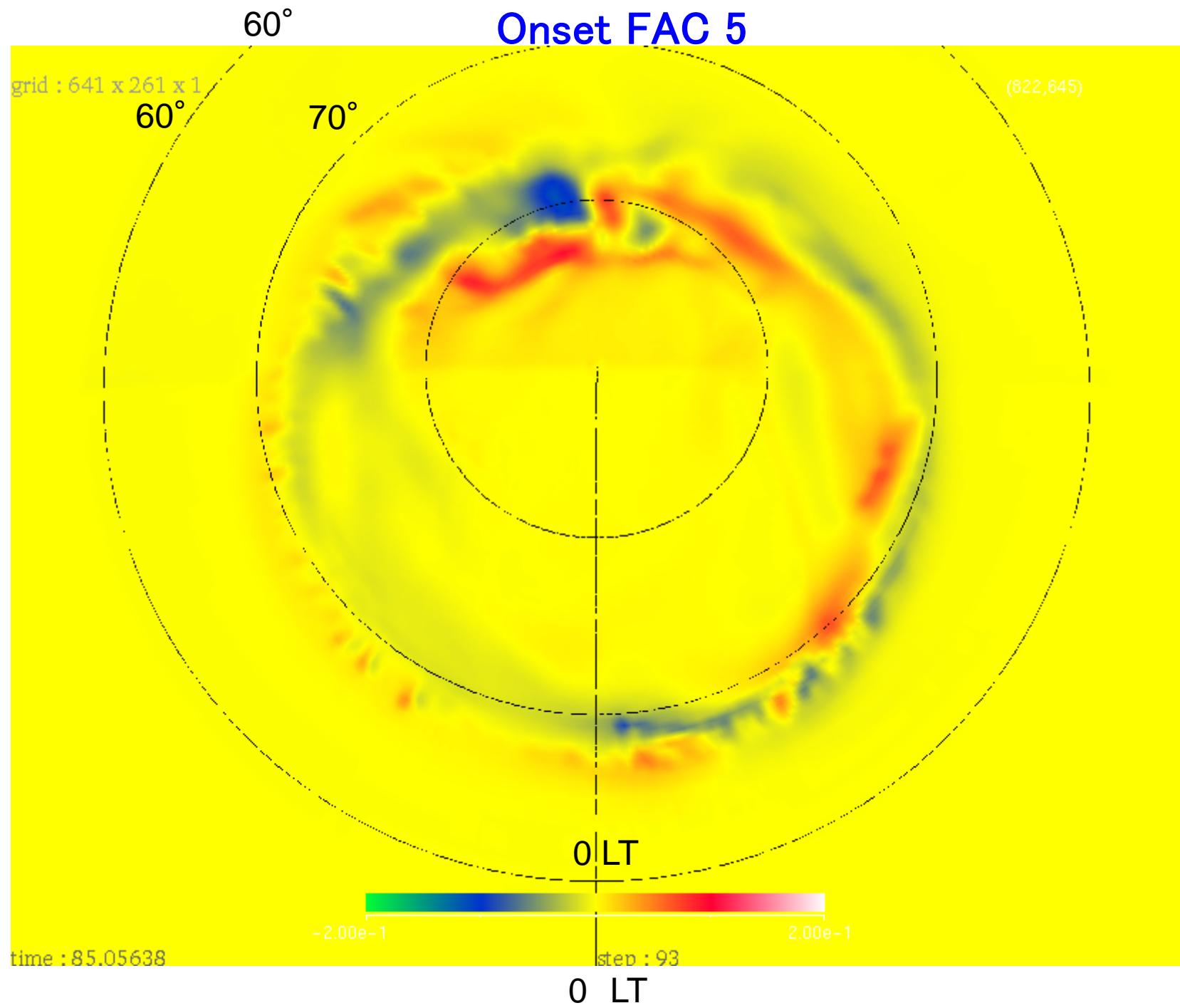


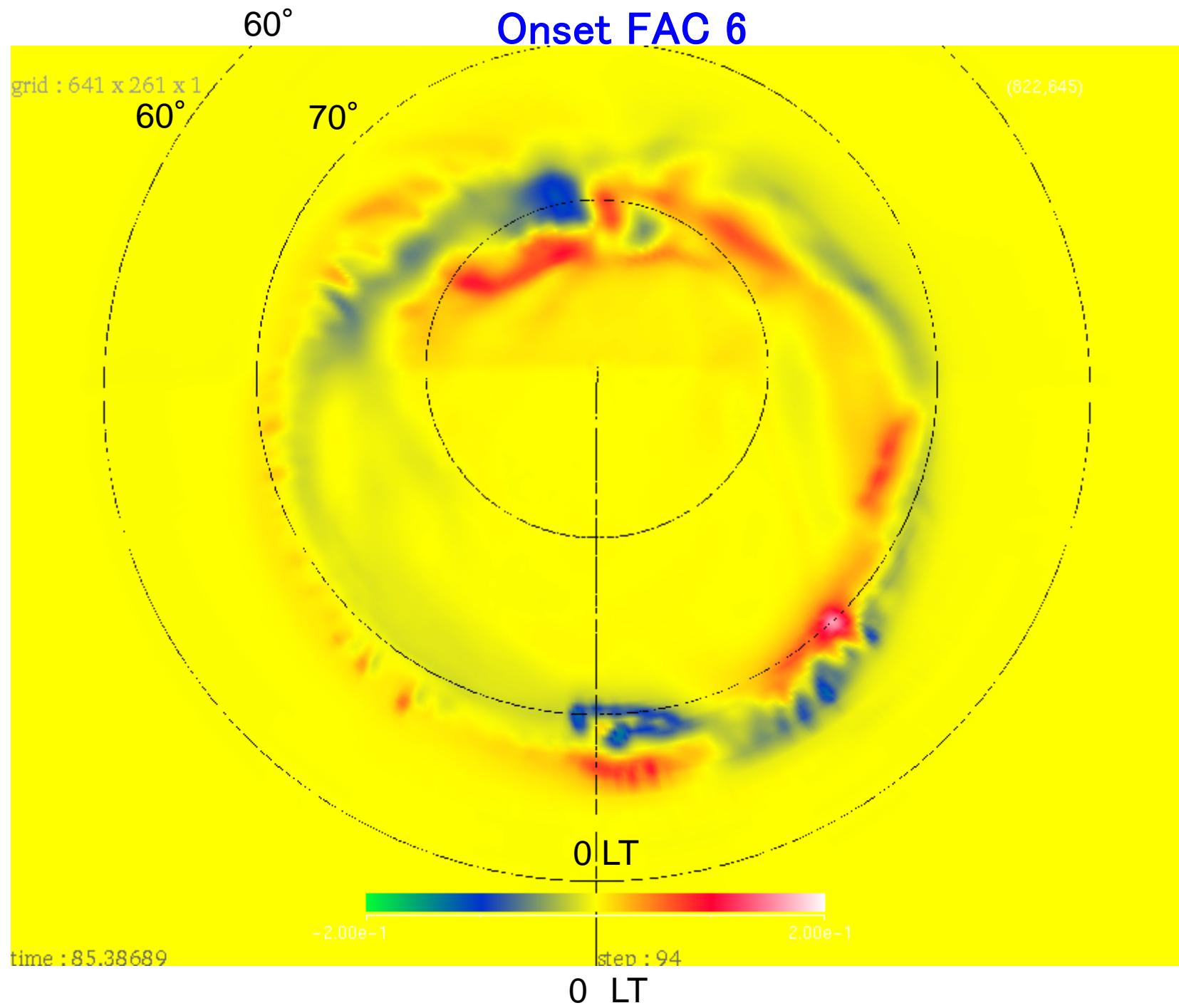


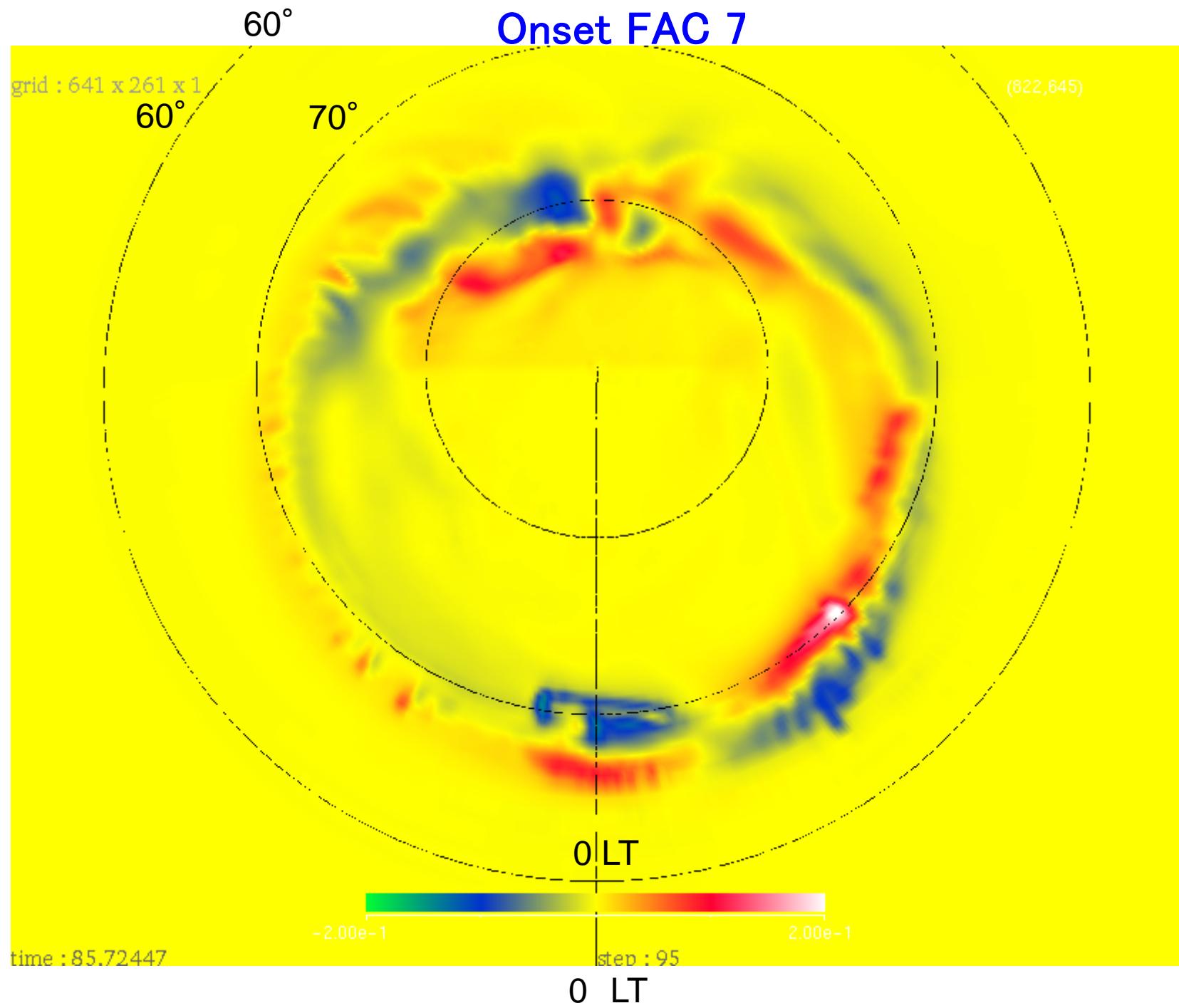




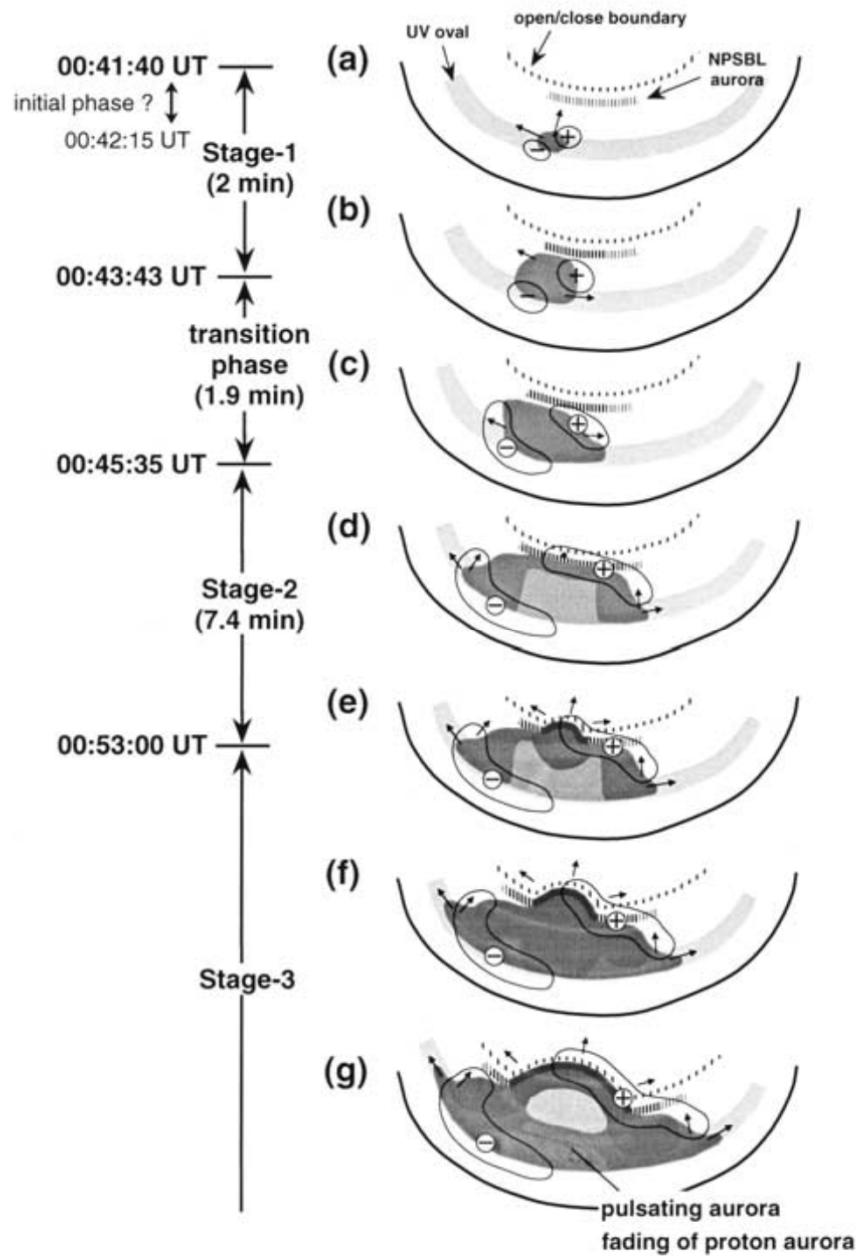








# Ground observation (Kadokura, 2002)



P at the onset (left) and just after the onset (right)

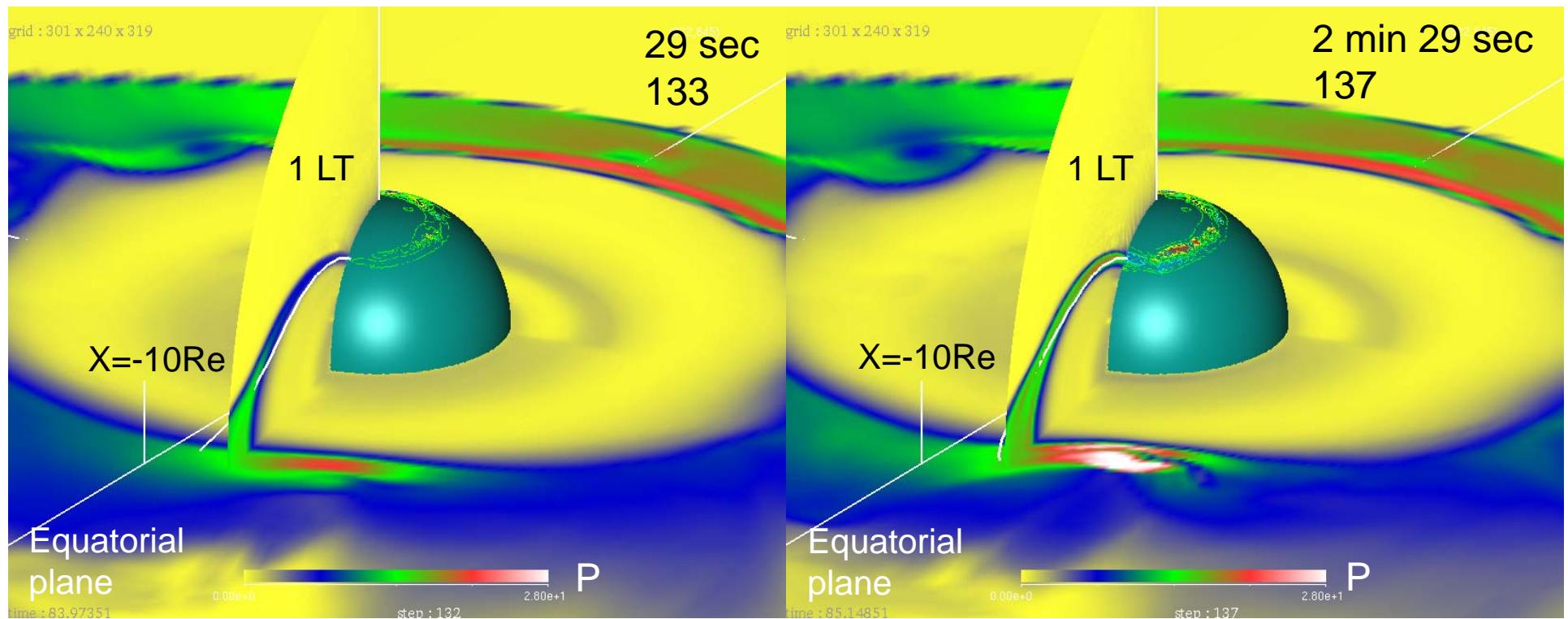
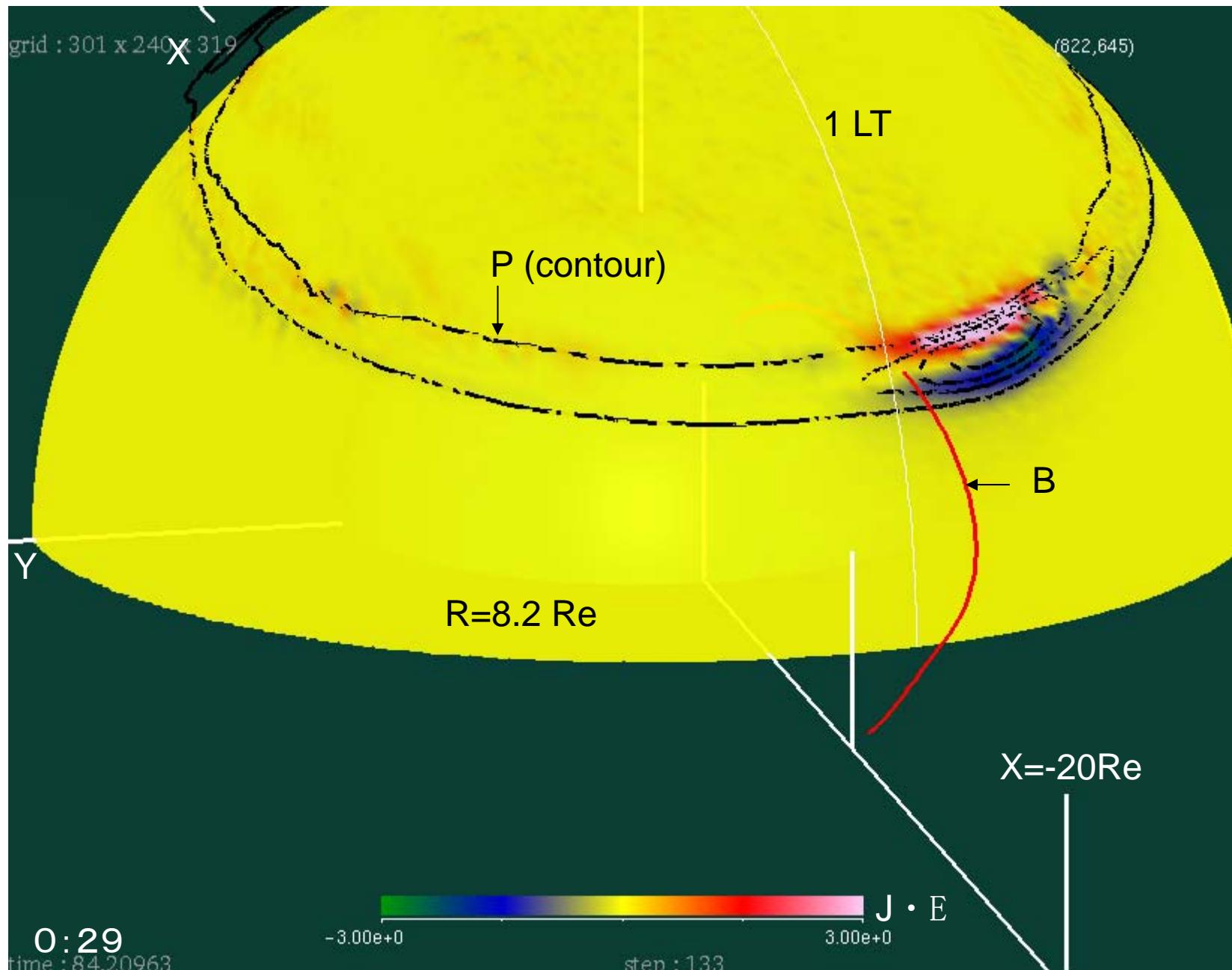


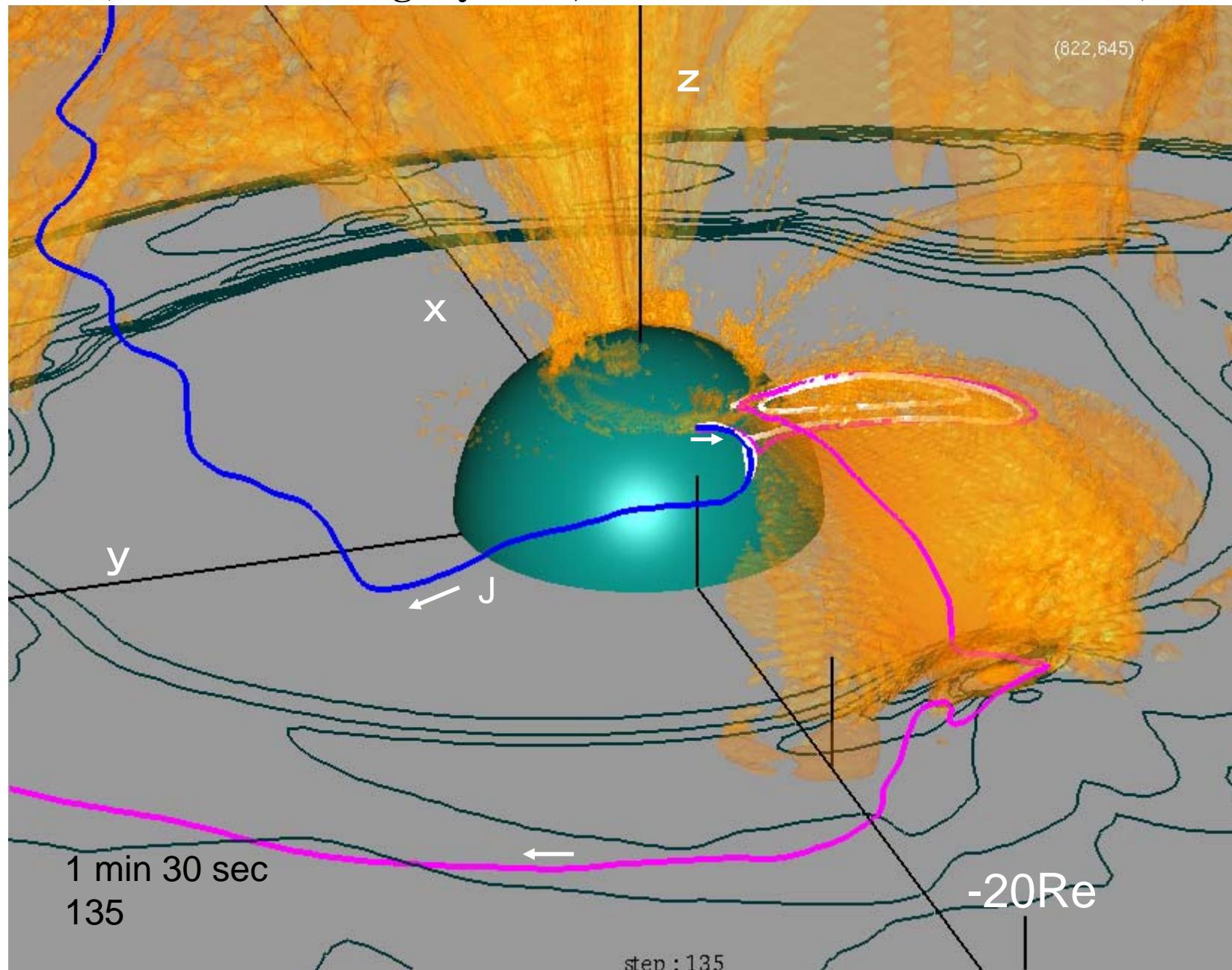
Fig. 4

## Near earth dynamo (color) and pressure distribution (contour)

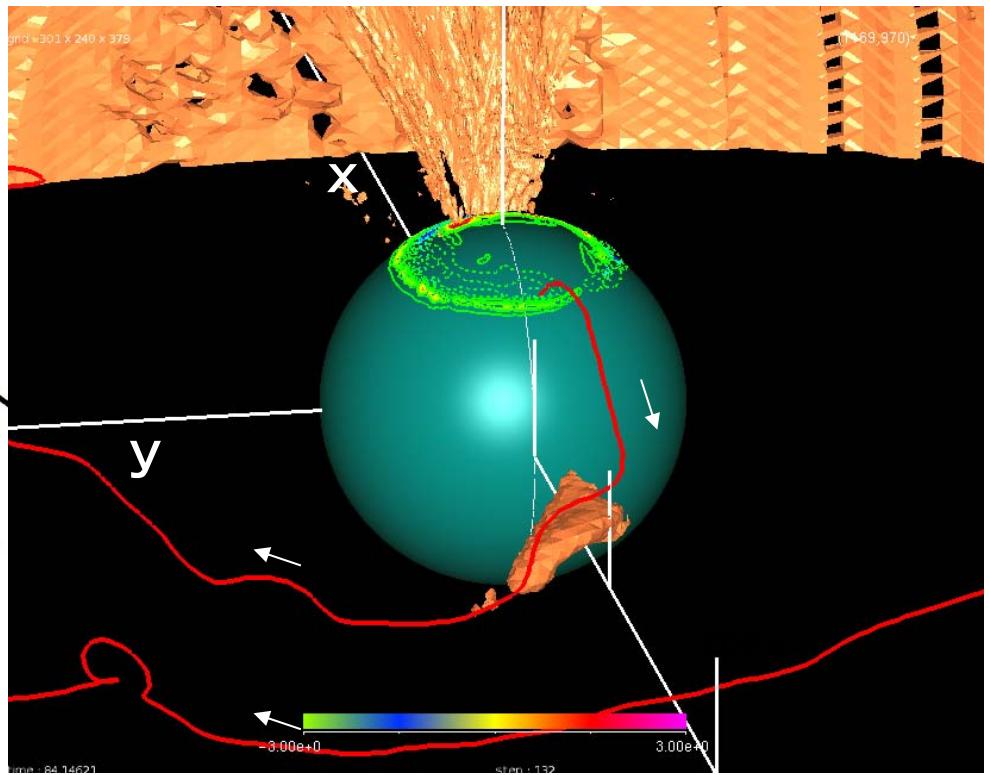
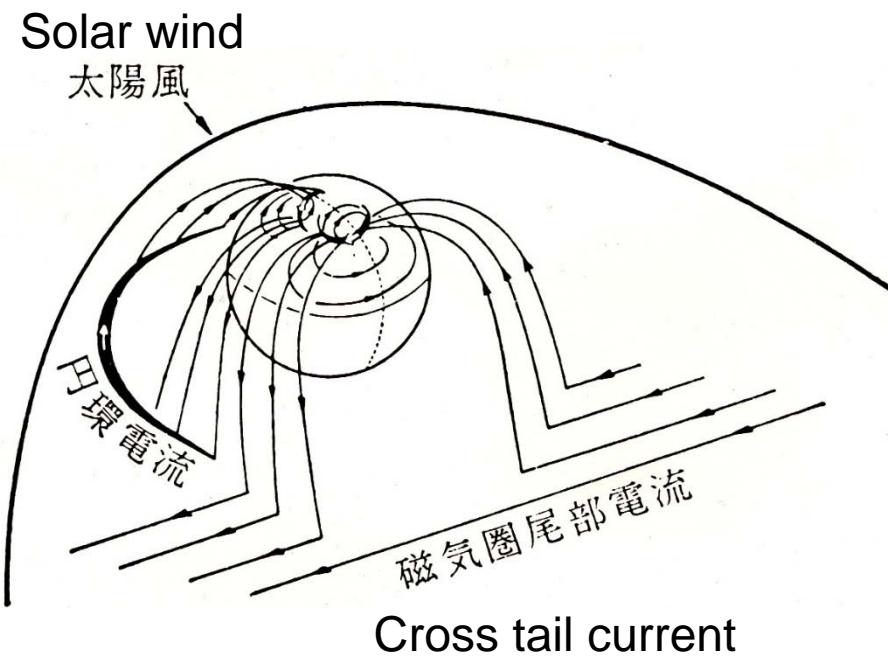


# Formation of the near-earth dynamo at the onset

(volume rendering: dynamo, lines: current from the onset arc)

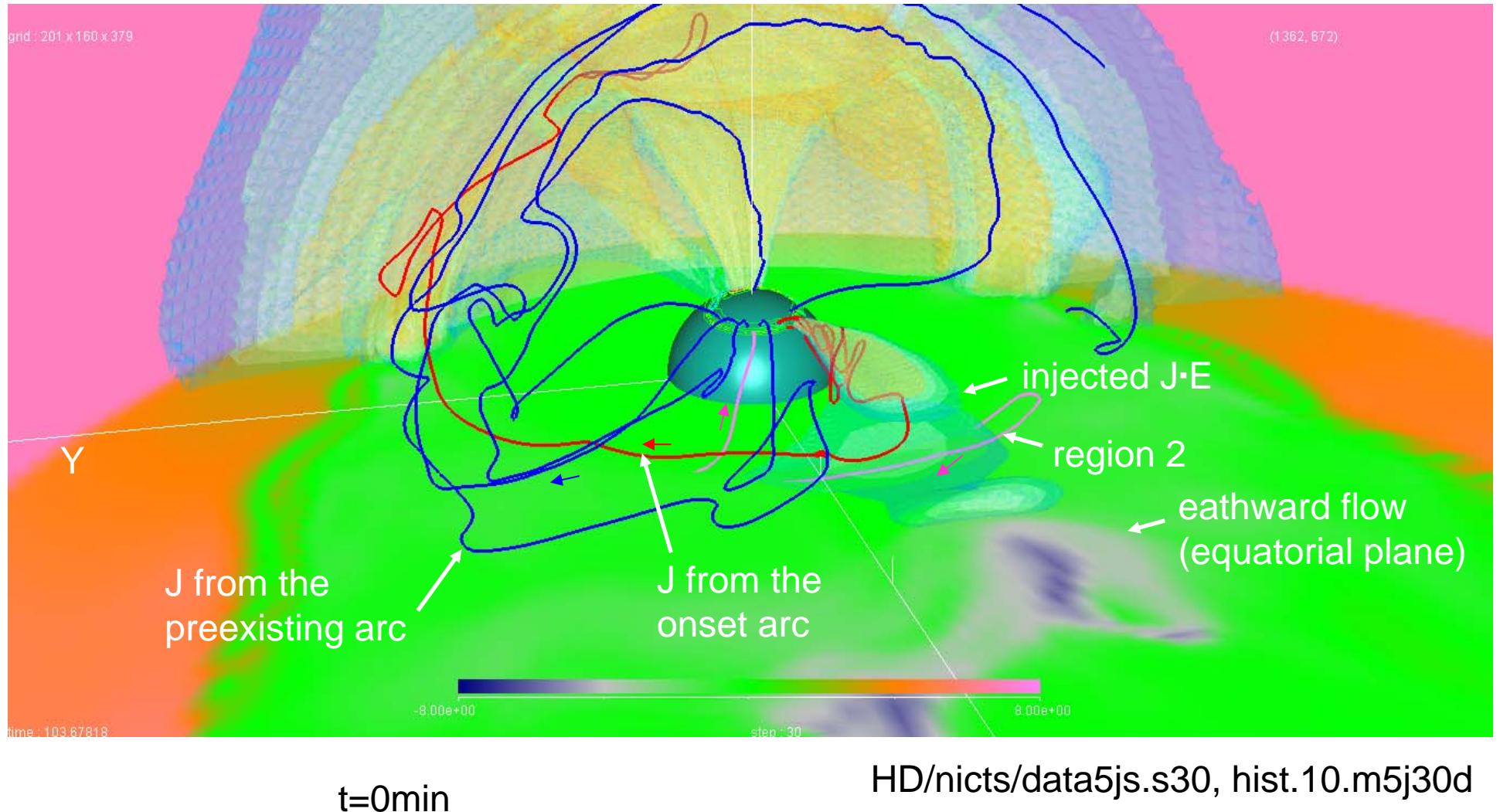


## Current wedge (left) and near earth dynamo (right)

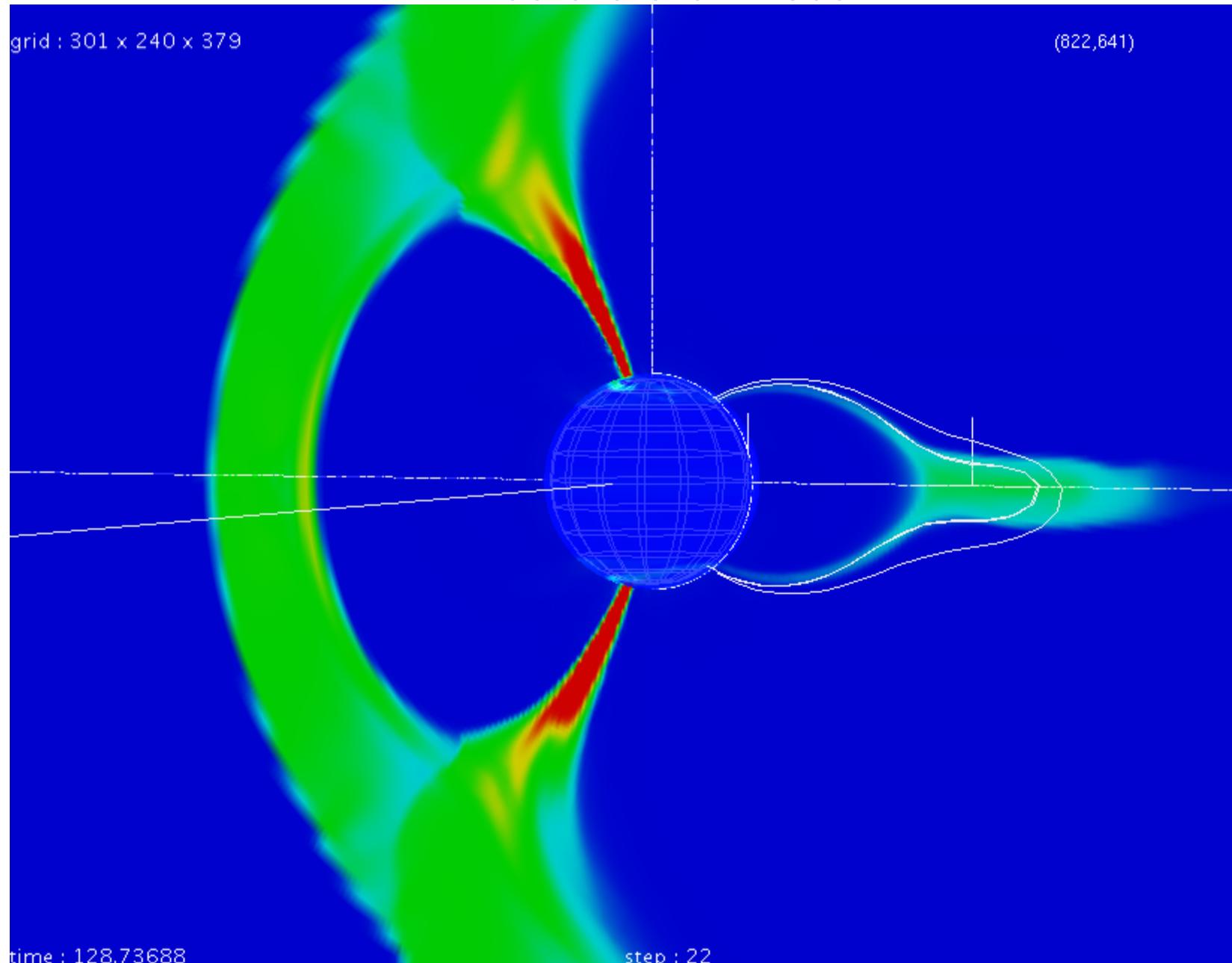


# Formation of the near-earth dynamo at the onset

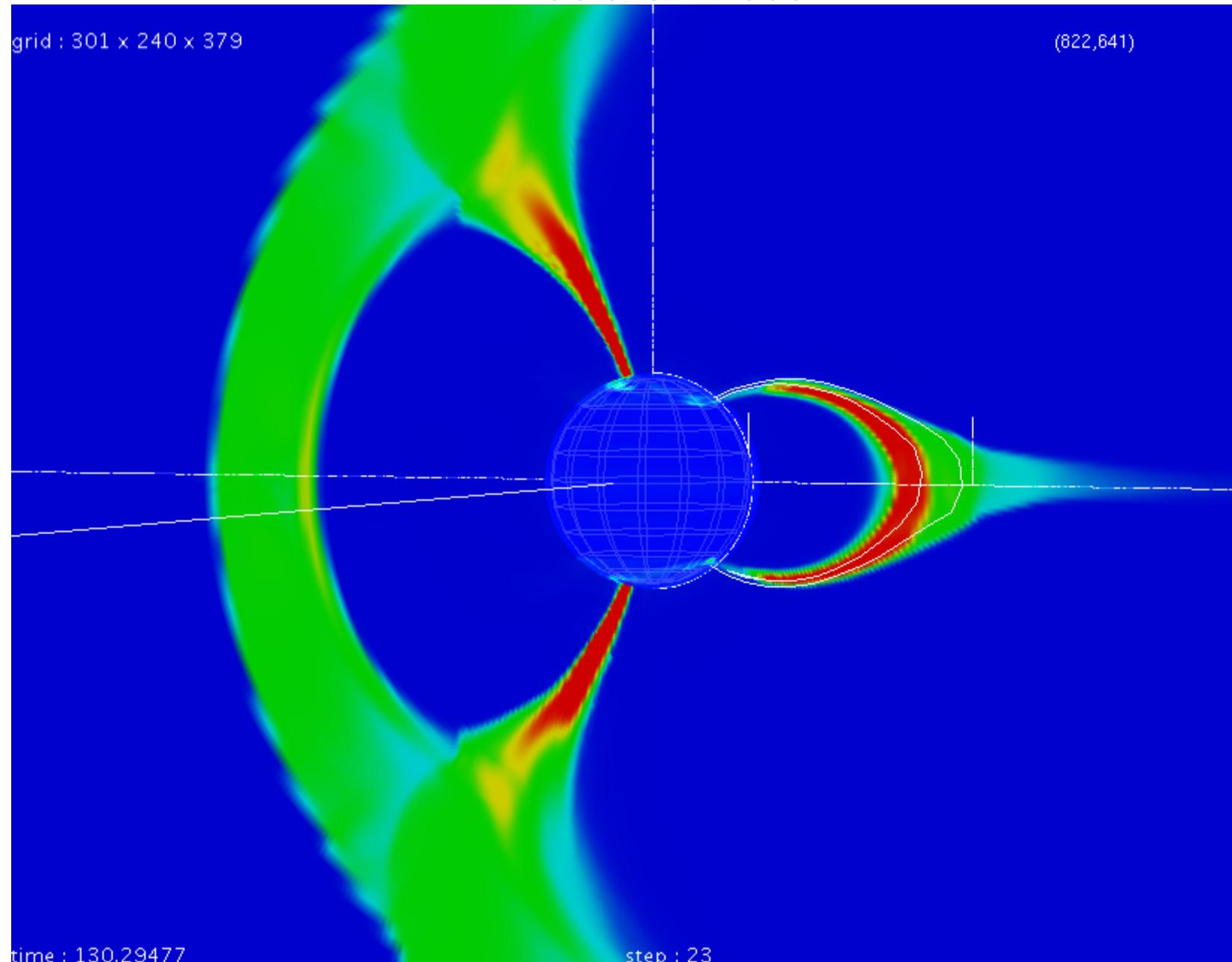
(shading:  $V_x$ , red lines: from onset arc, blue lines: from preexisting arc)



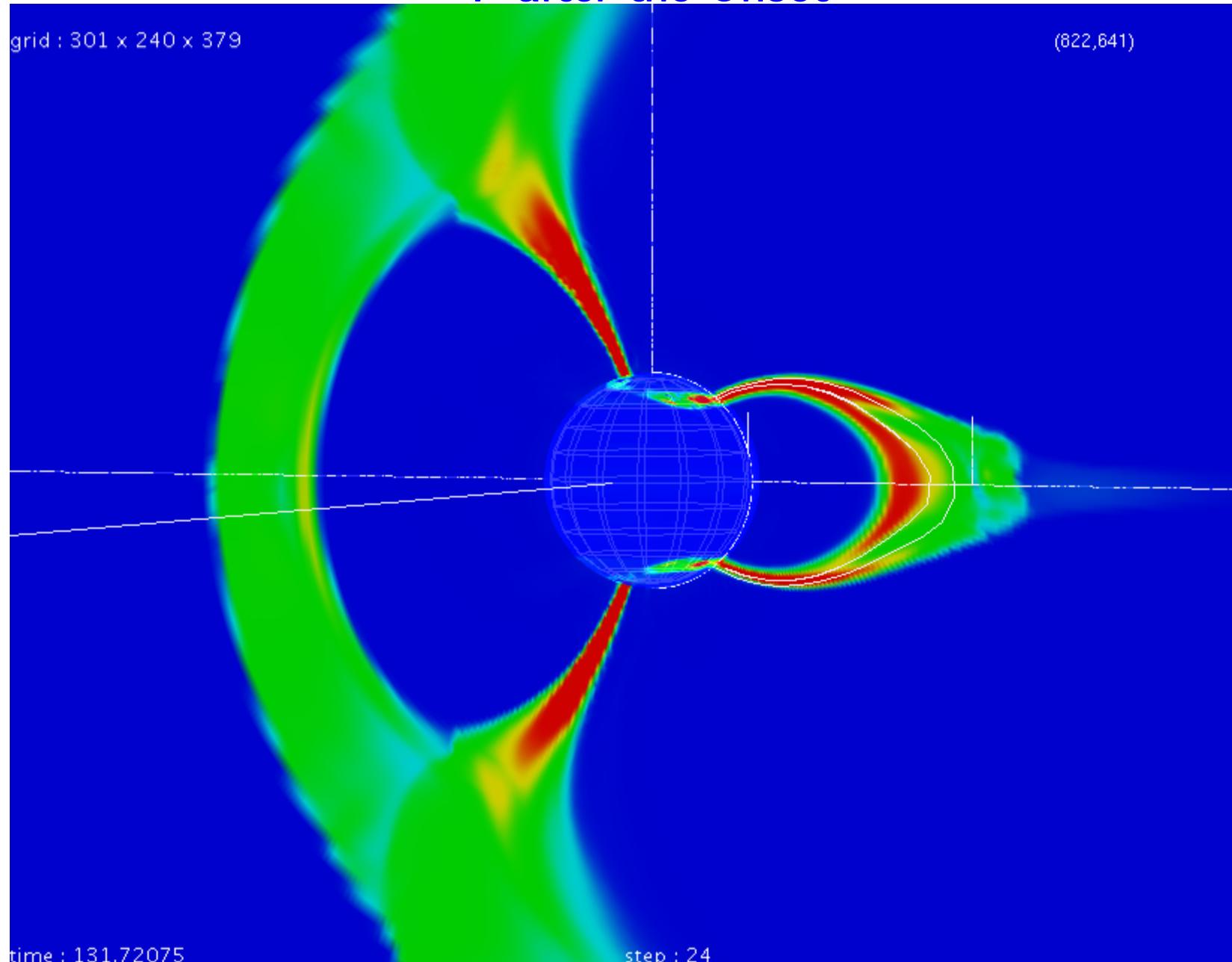
# P before the Onset

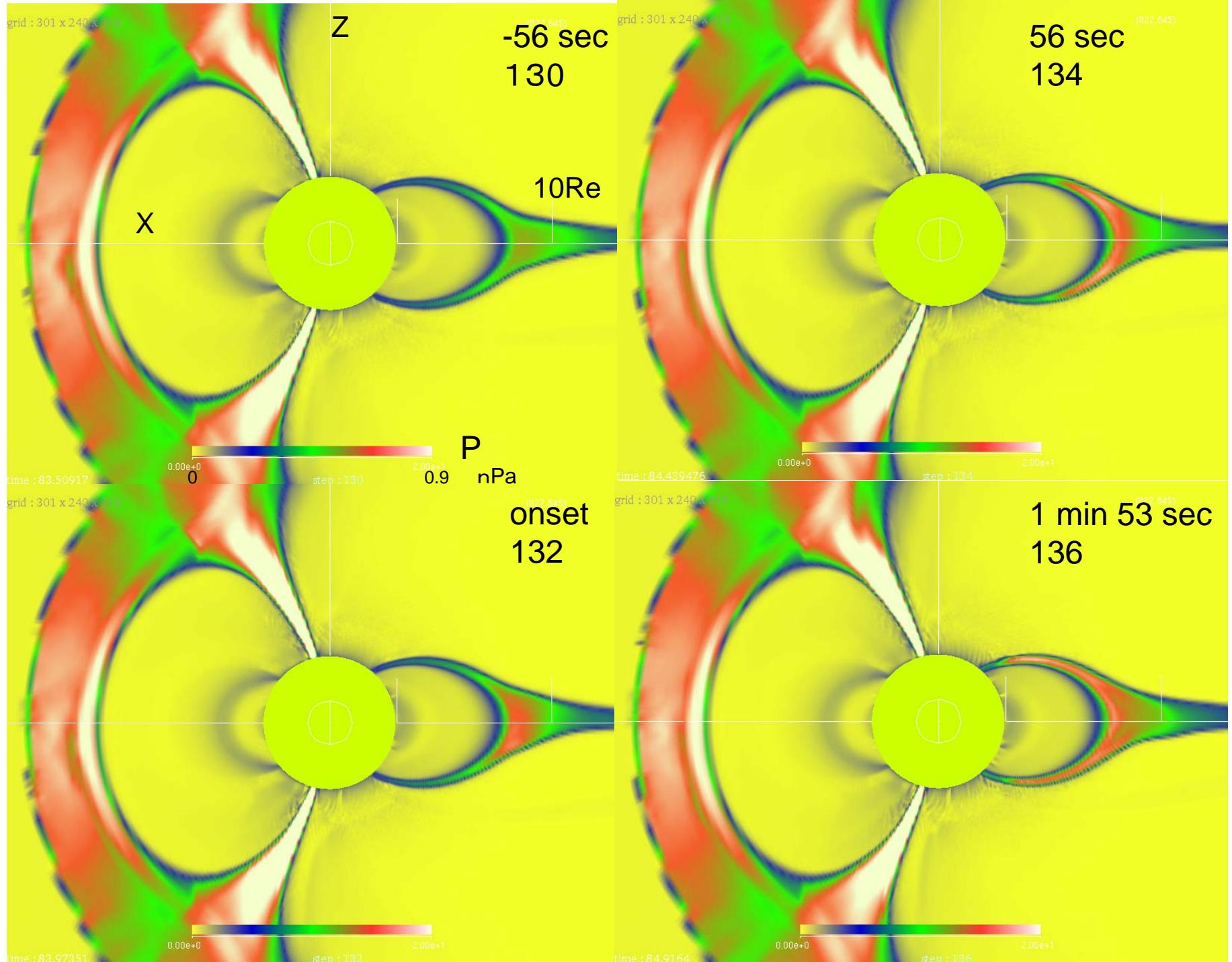


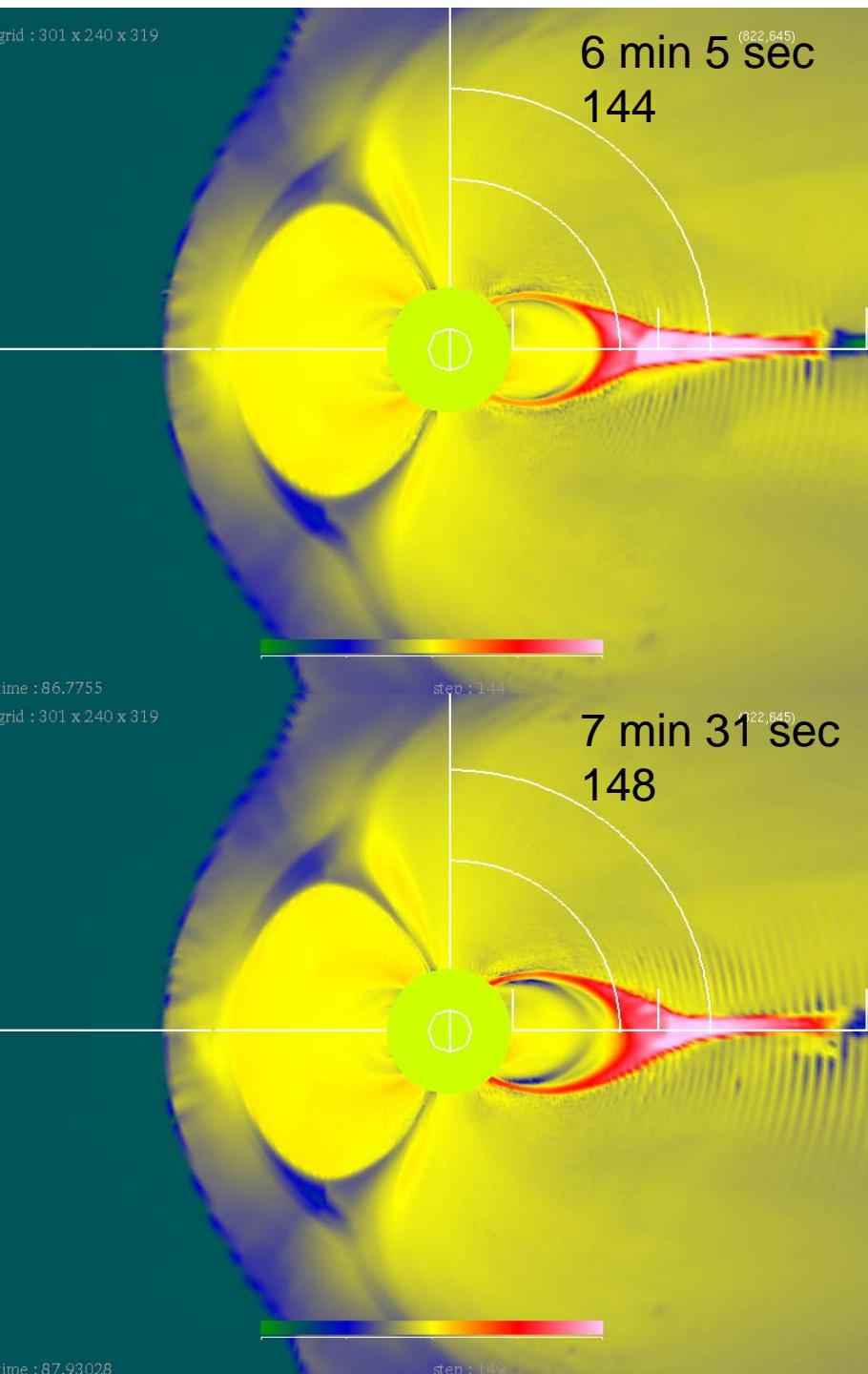
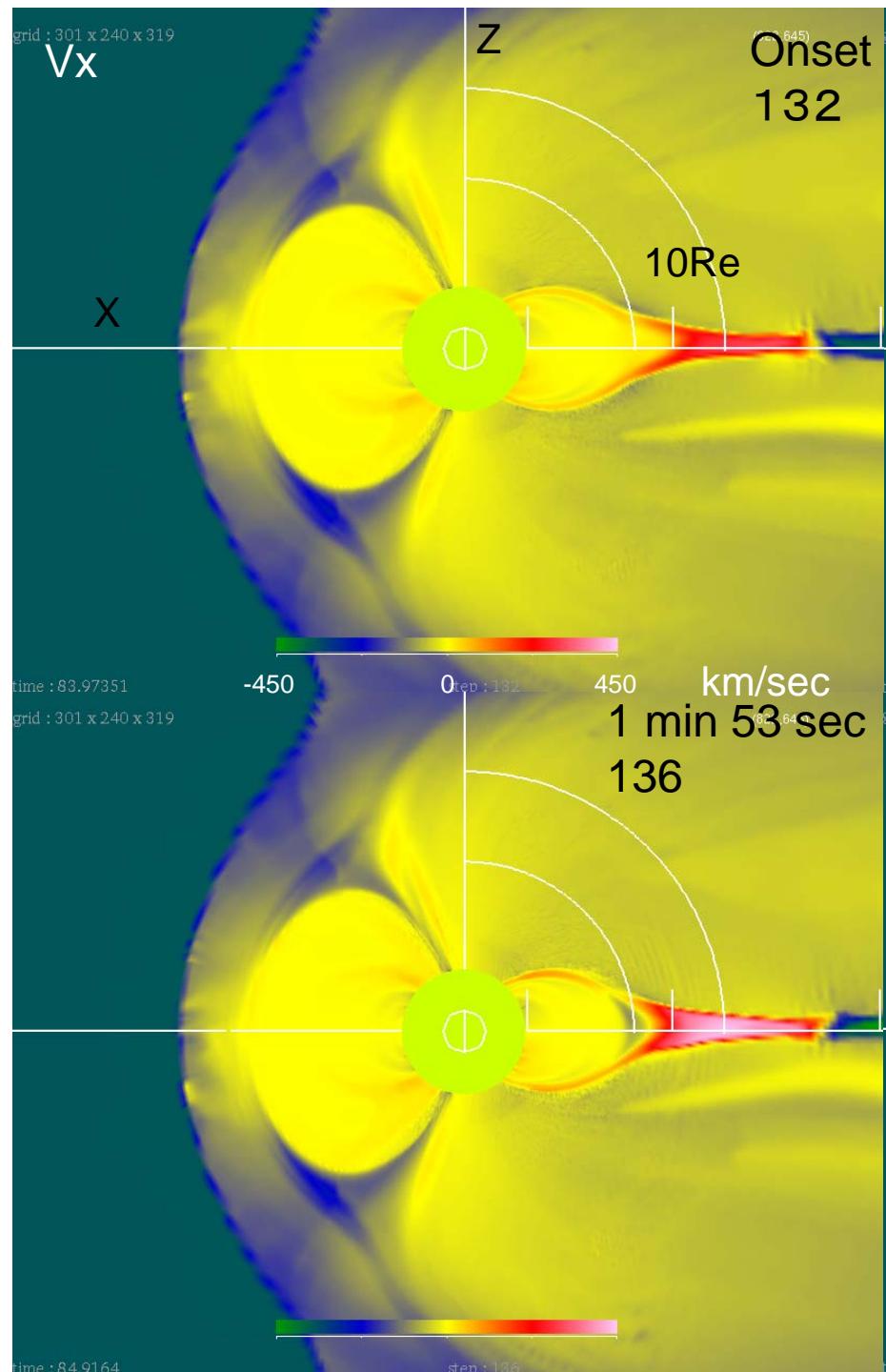
# P at the Onset

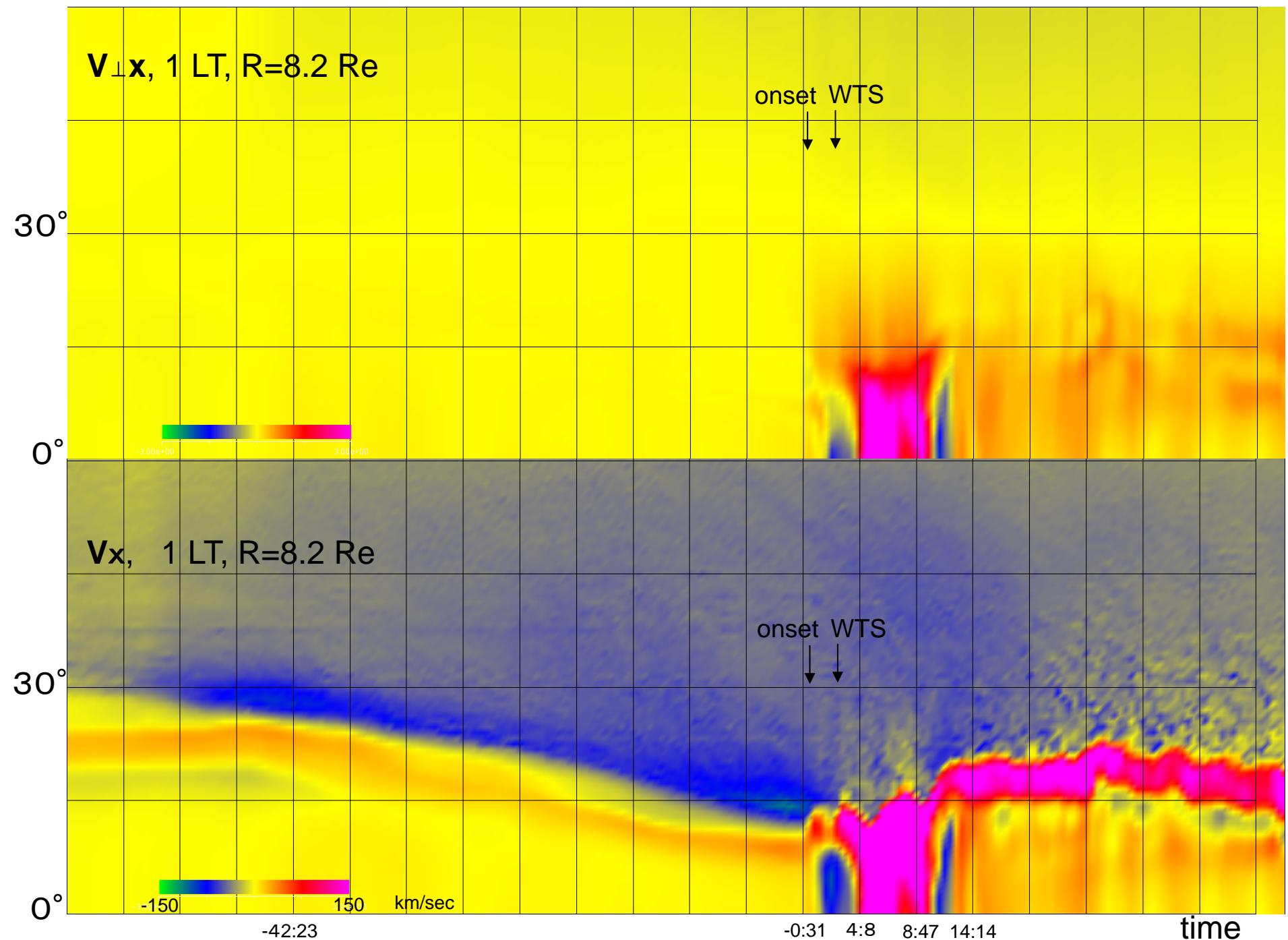


# P after the Onset









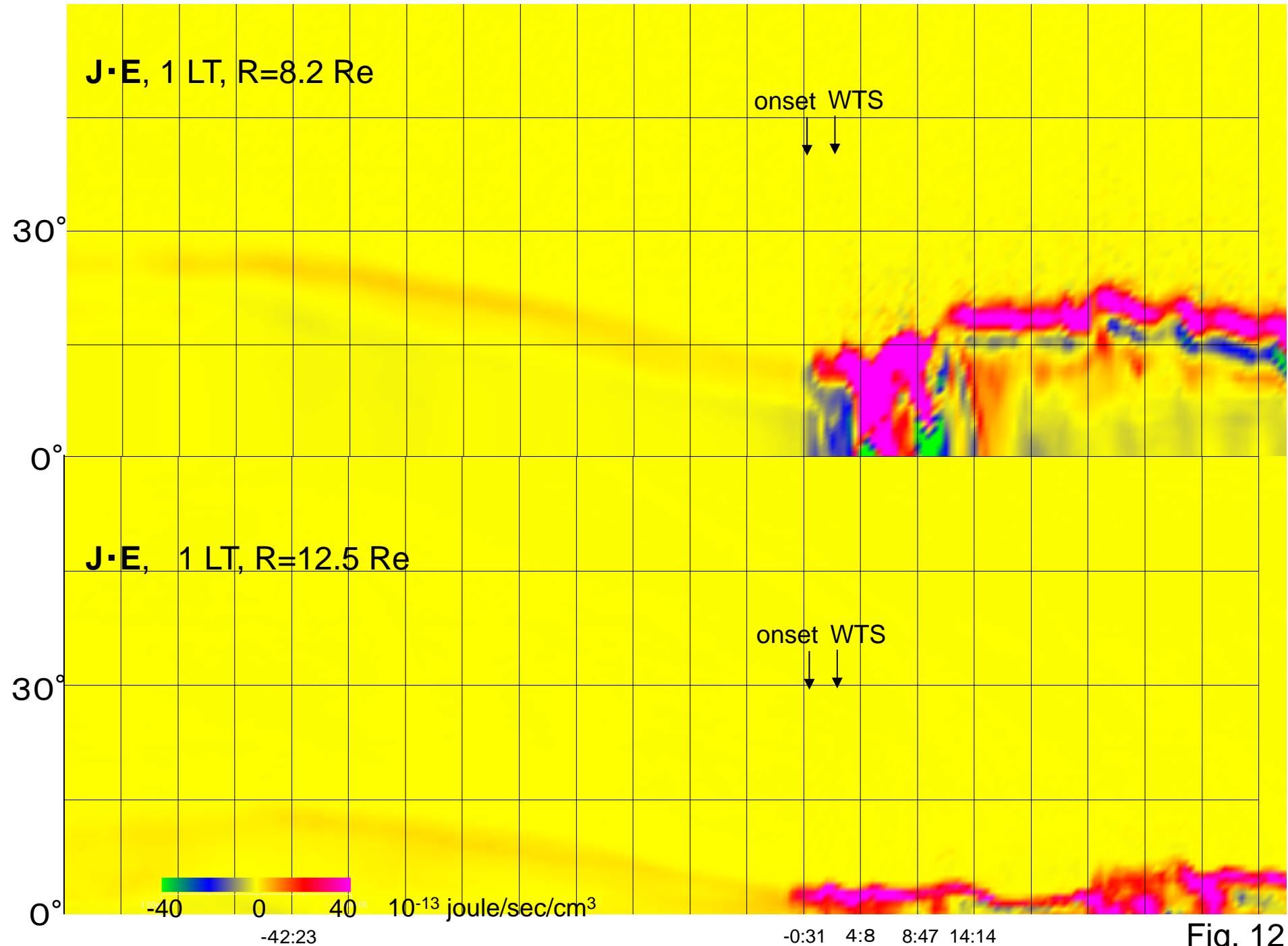
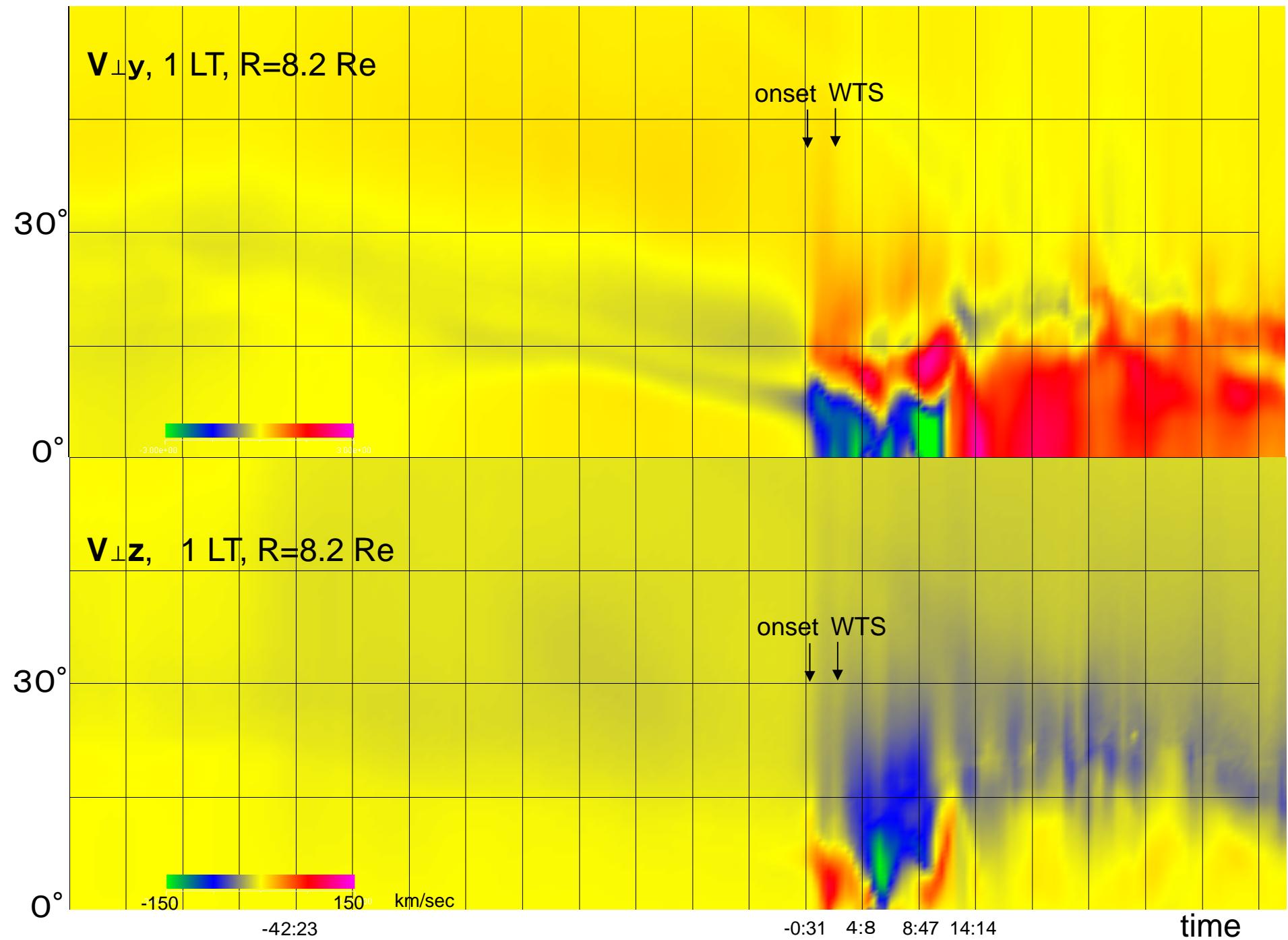


Fig. 12



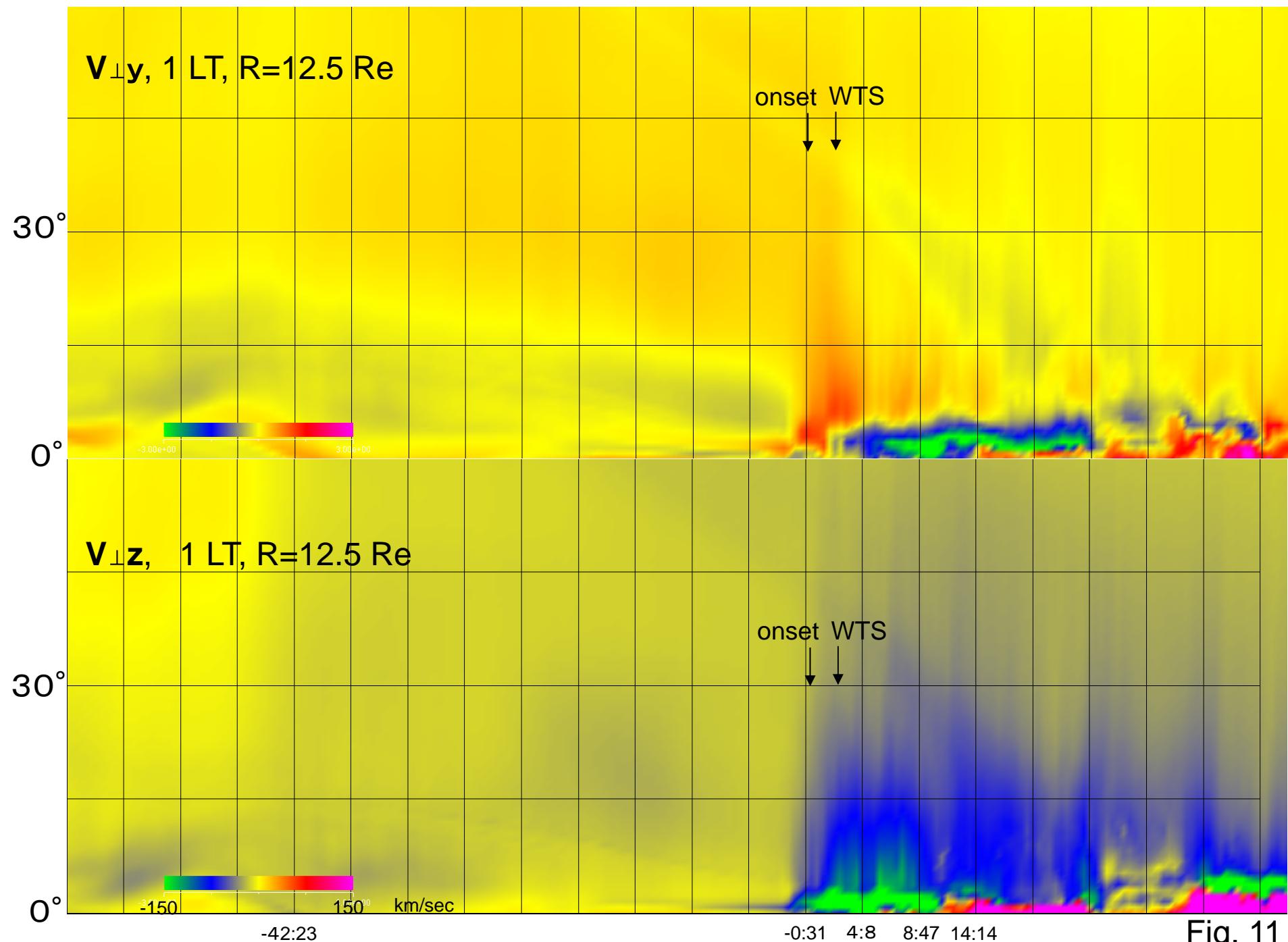
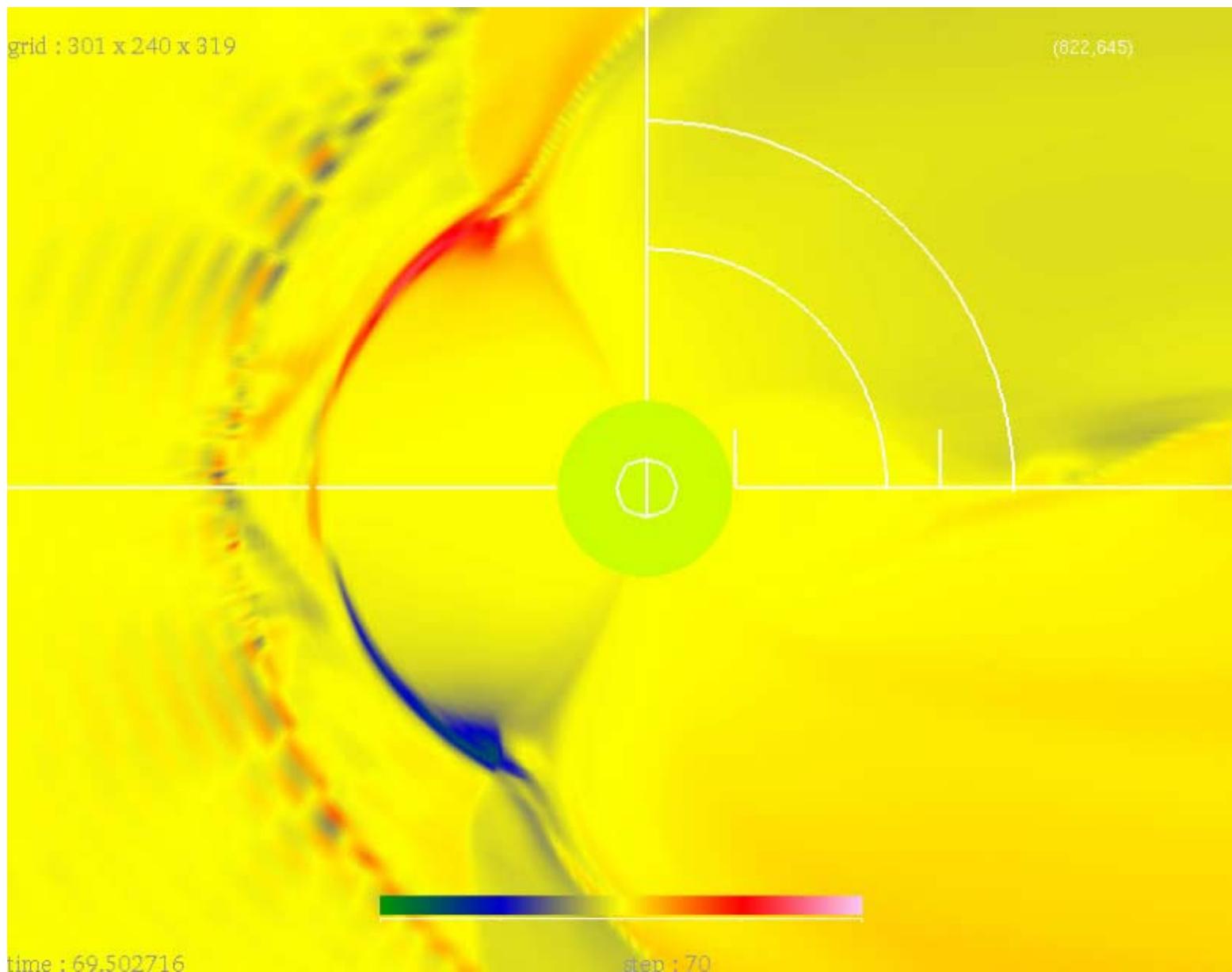


Fig. 11

**B<sub>⊥z</sub>**



**END**