

The Structure of Summertime Atmospheric Circulation over Southwest Asia

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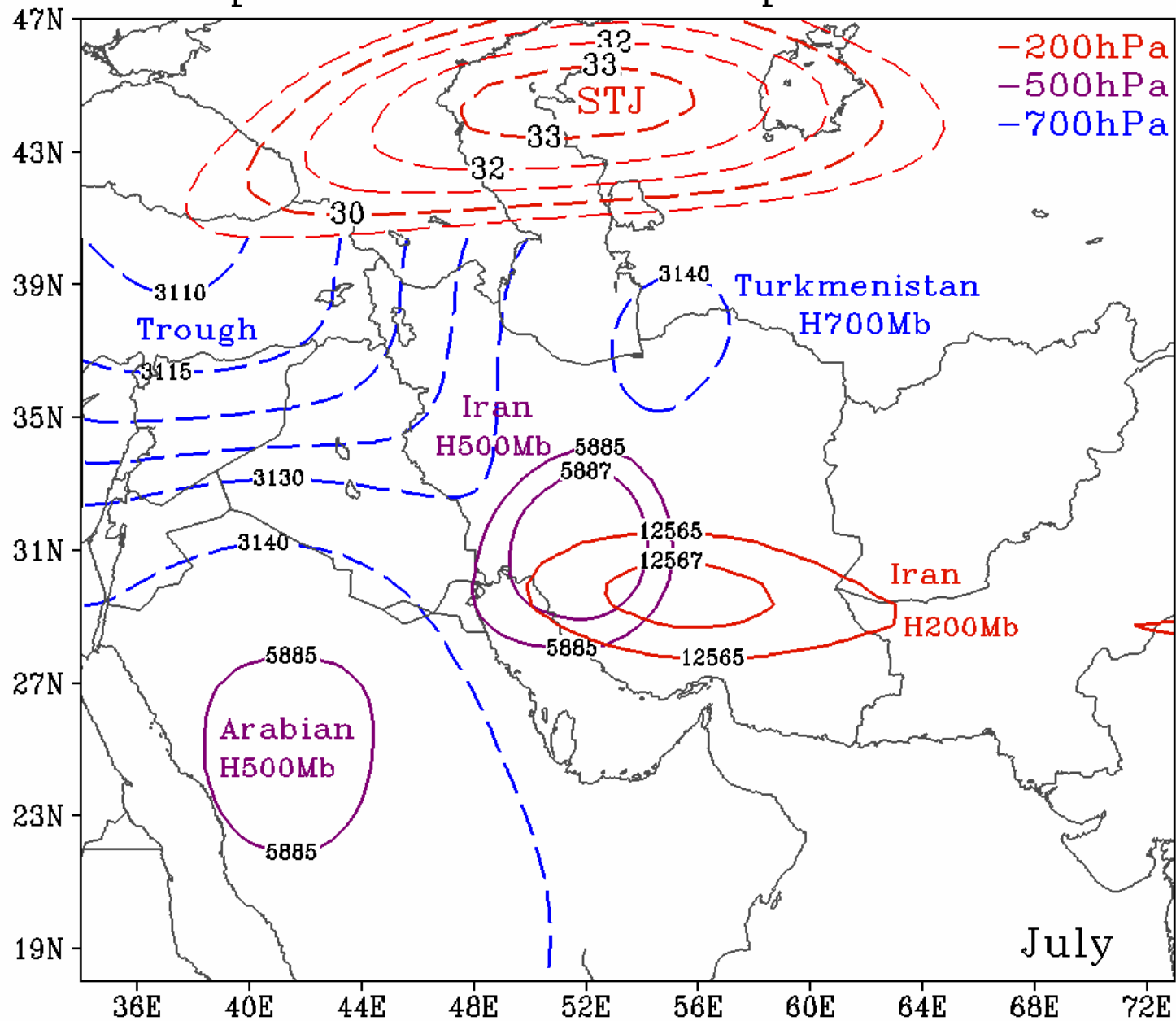
Introduction

- ❑ Southwest Asia is a transient region with respect to the large scale atmospheric circulation patterns. This region is a location for interaction between extra-tropical and tropical systems during the year. It is also the region of the formation and settling of subtropical pressure systems.
- ❑ The atmospheric research over Southwest Asia for the warm period was done infrequently, at irregular intervals and in scattered locations. Thus, the summer atmospheric circulation components over Southwest Asia are less known.
- ❑ The goal of this research is to introduce the summer atmospheric circulation components over Southwest Asia.

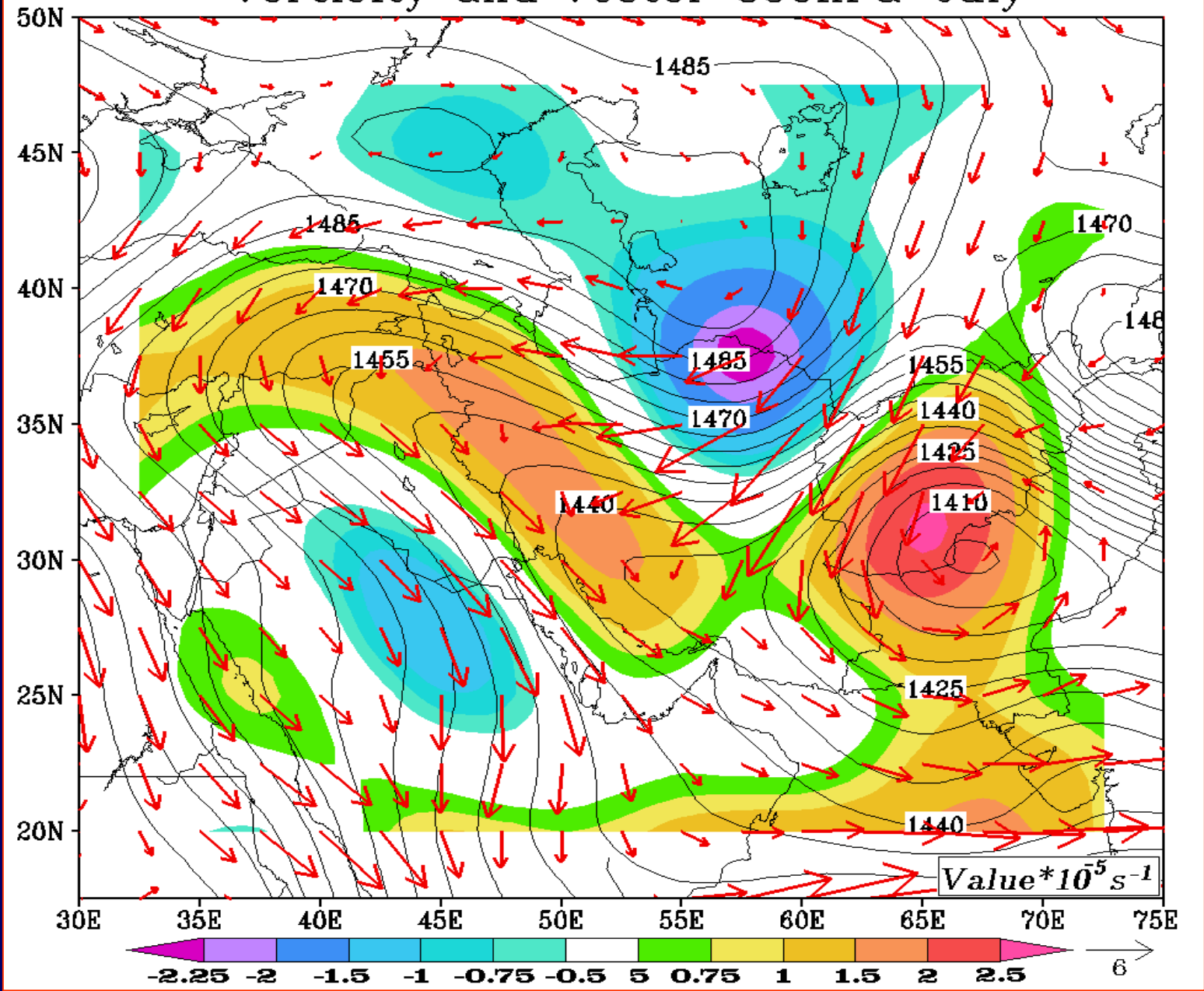
Summer Atmospheric Circulation Components over Southwest Asia (SWA)

A Climatological View

Atmospheric Circulation Components over SWA



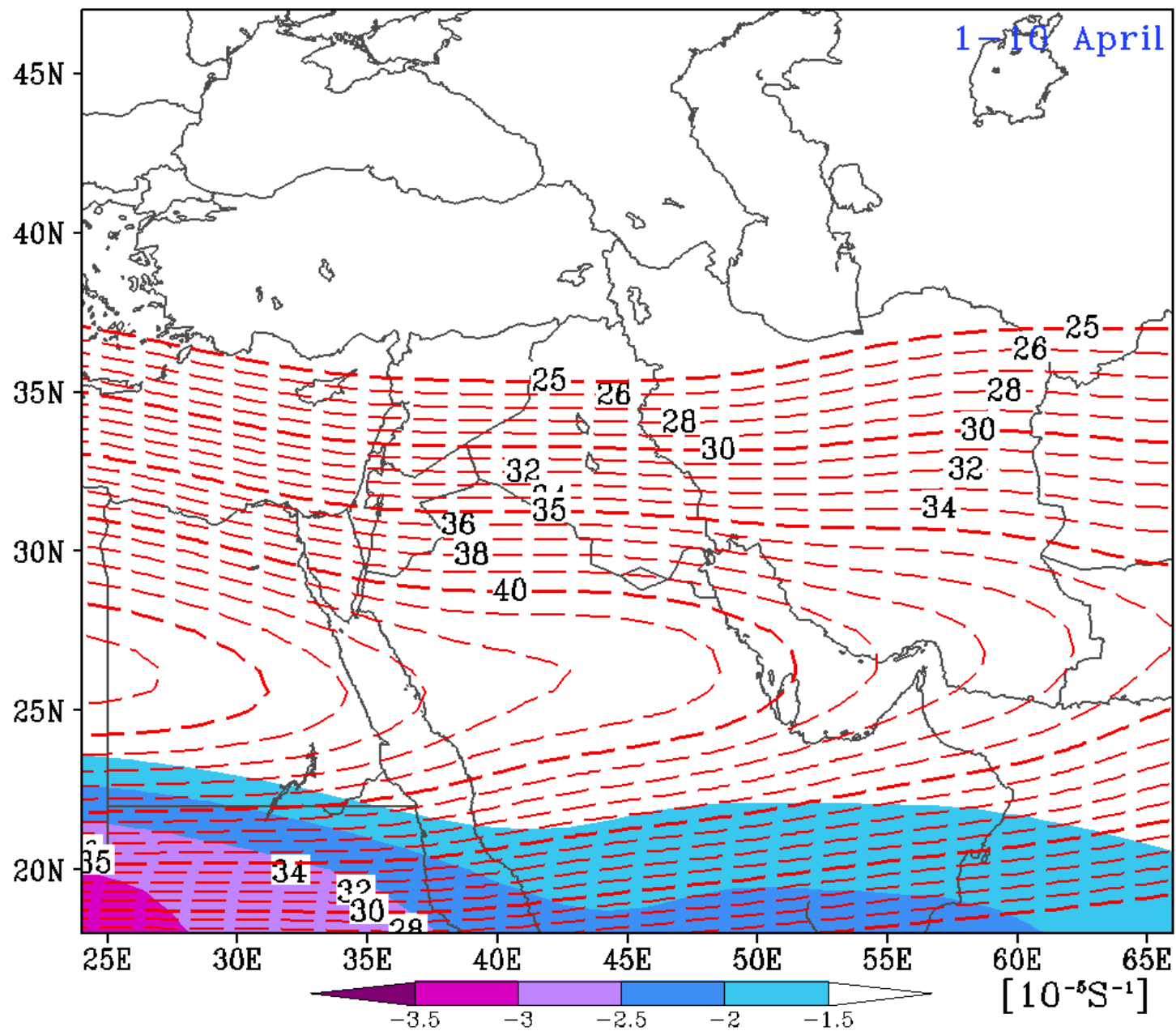
Vorticity and Vector 850hPa-July



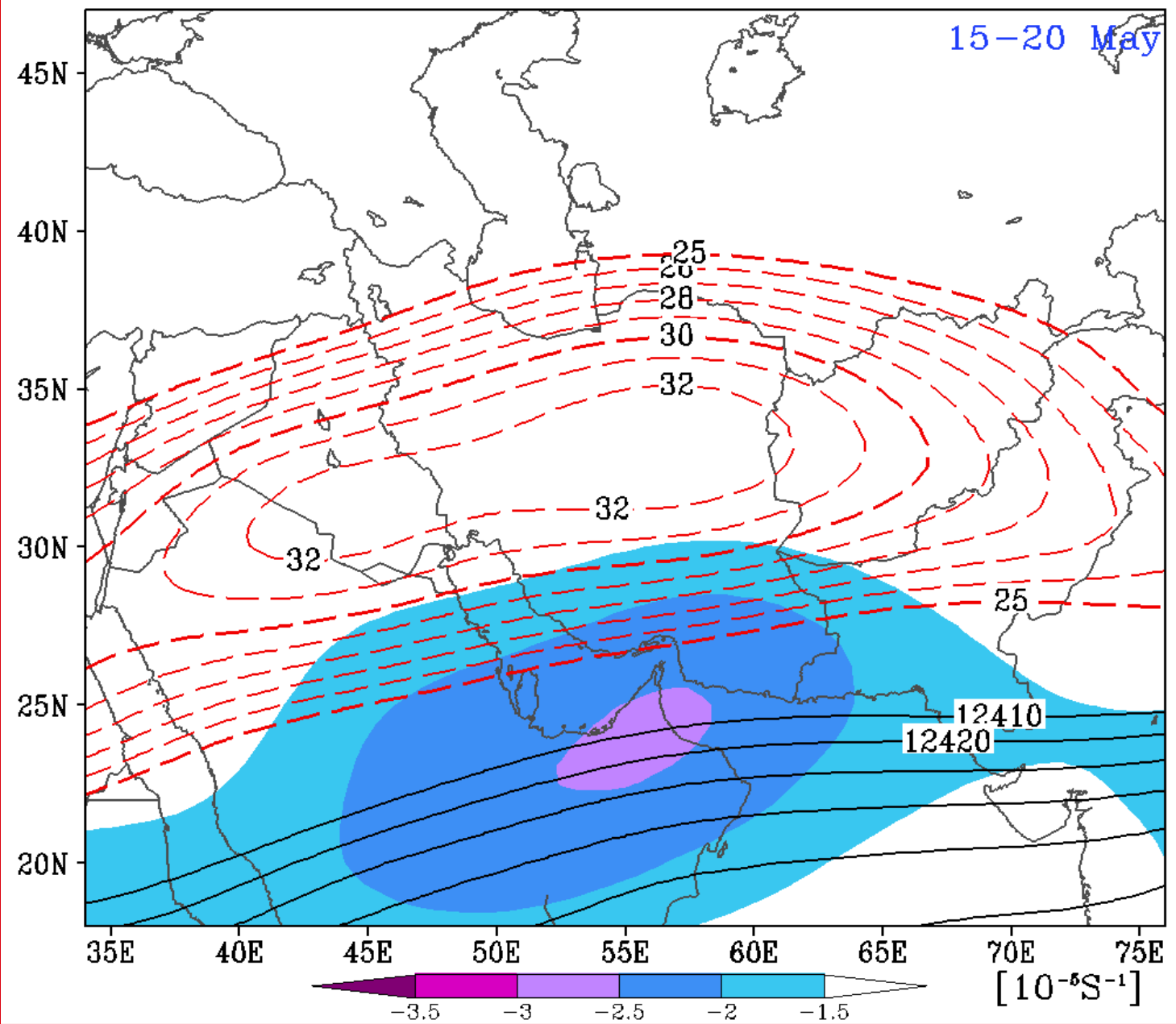
Summer Atmospheric Circulation Components over Southwest Asia (SWA)

Subtropical Jetstream

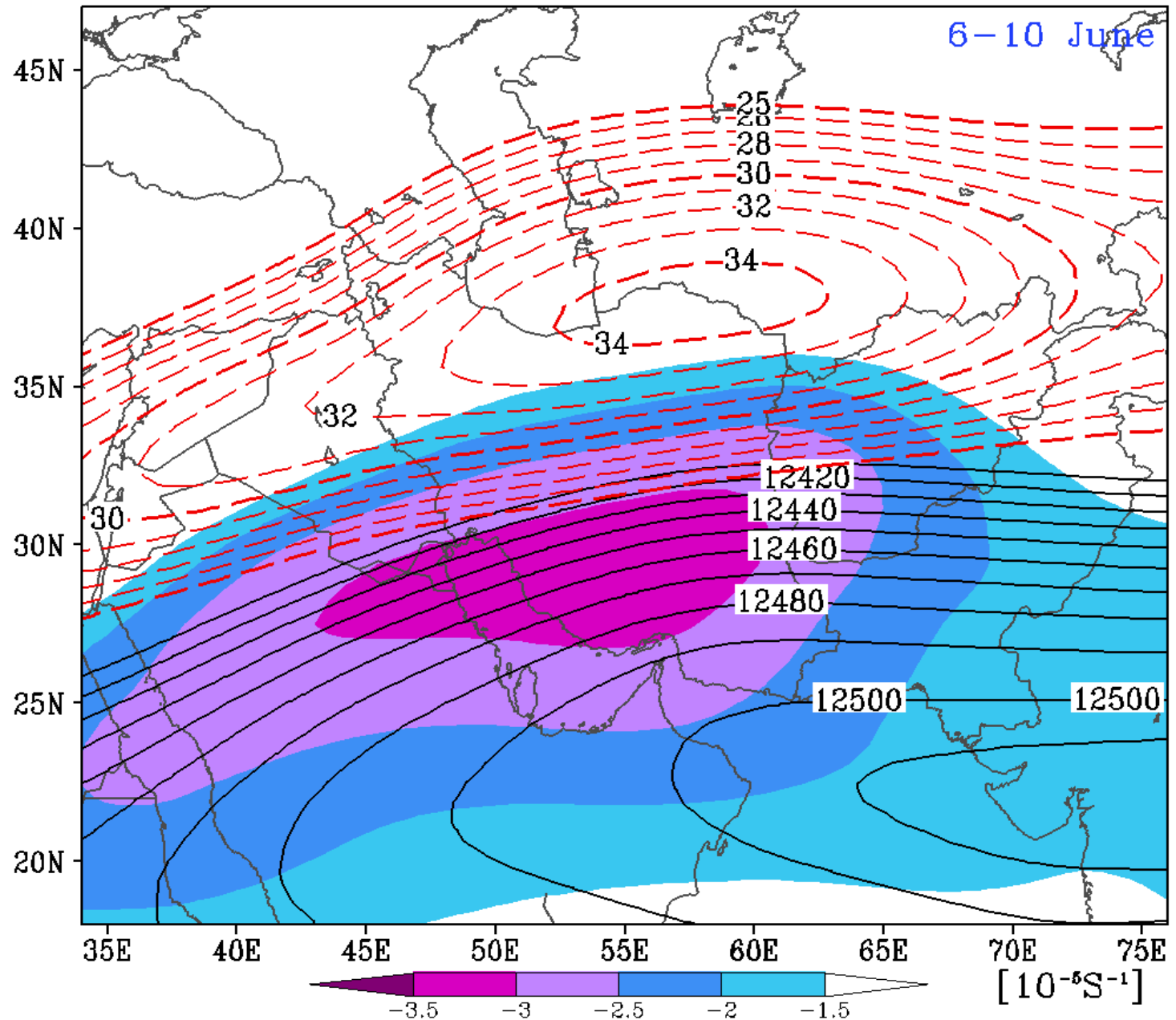
Uwind-Geopotential Height and Vorticity 200hPa



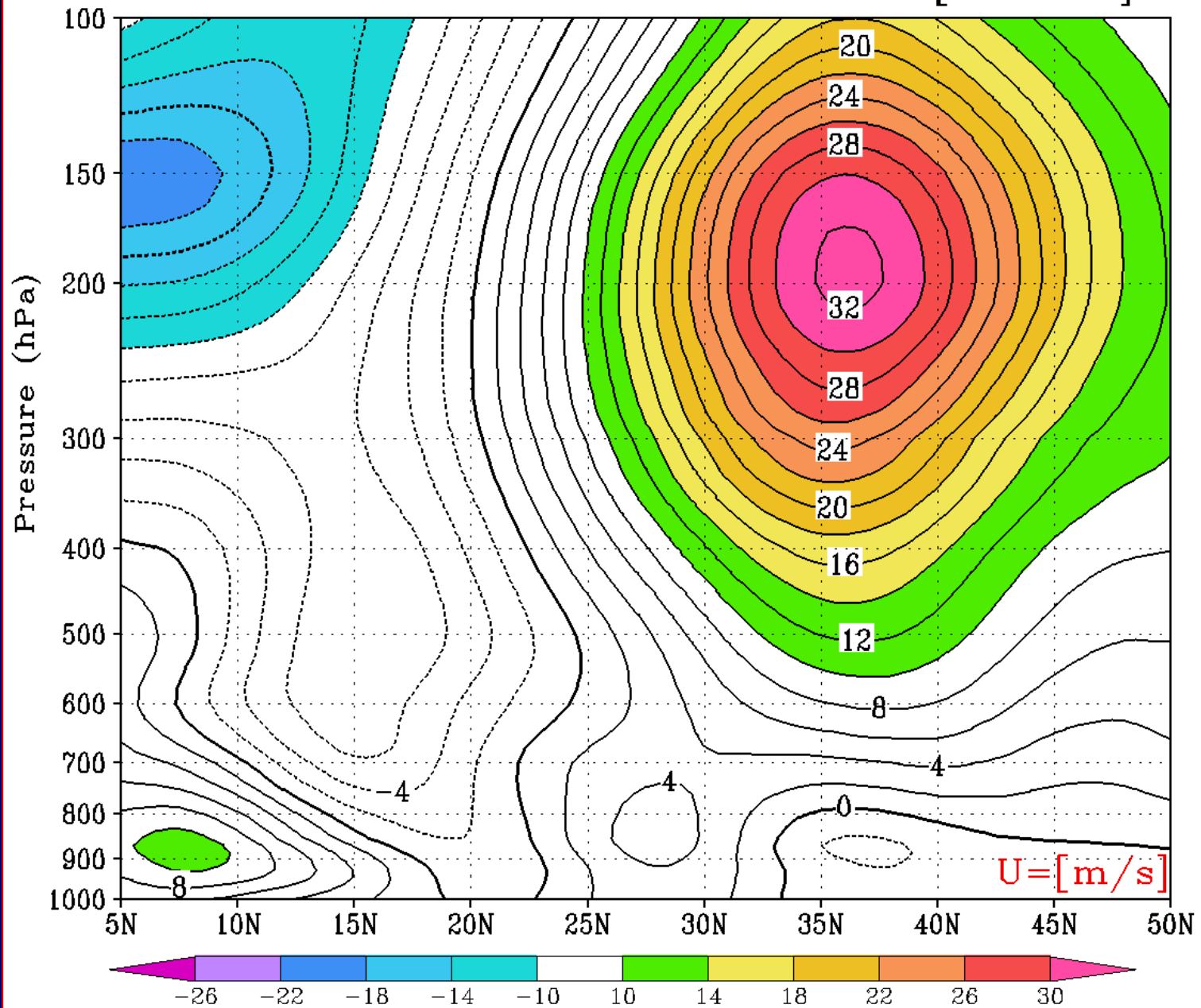
Uwind-Geopotential Height and Vorticity 200hPa



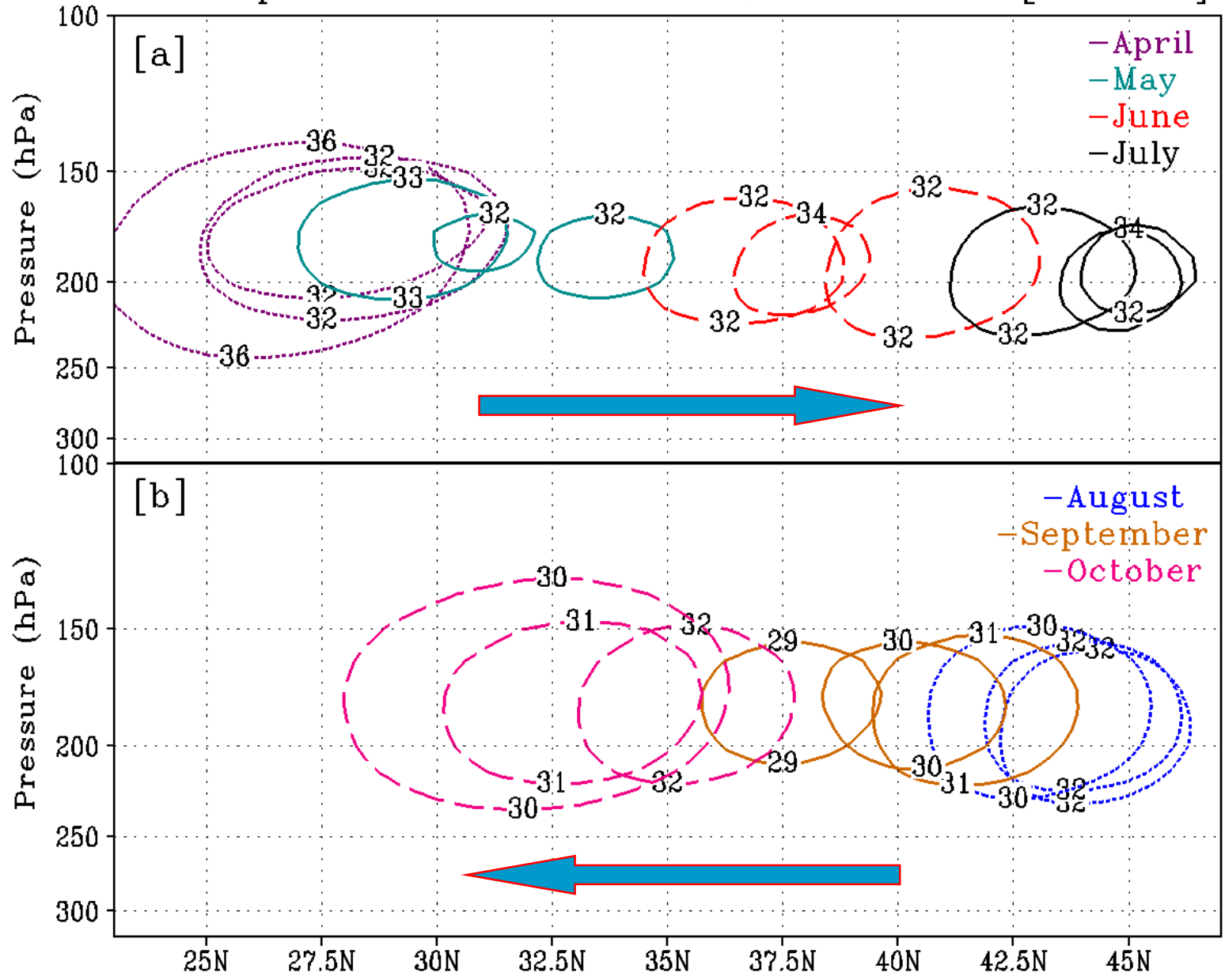
Uwind-Geopotential Height and Vorticity 200hPa



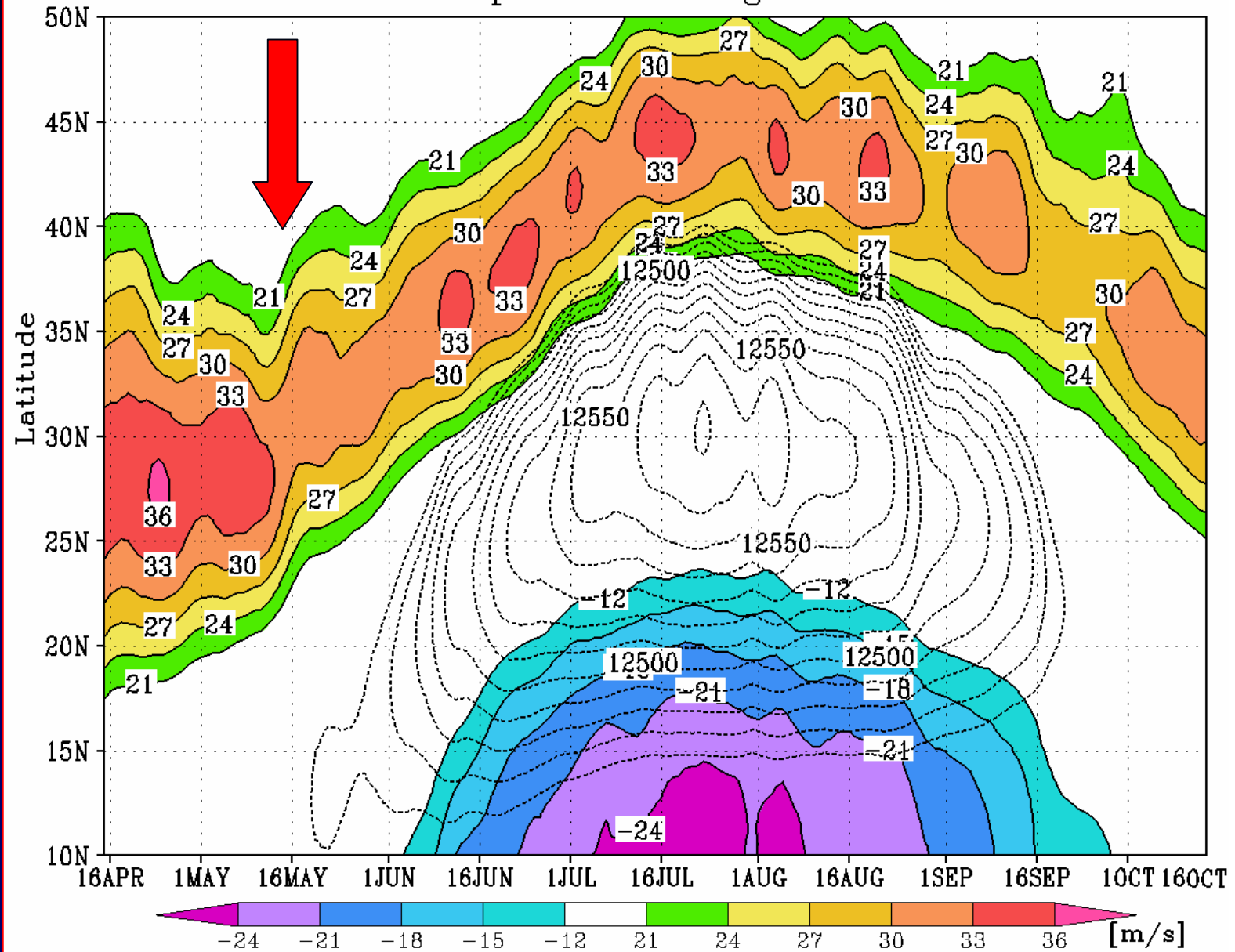
Jetstream Cross Section - Lon:50-55E [1-5June]



Subtropical Jetstream Position; Lon:50-55E [AMJJASO]



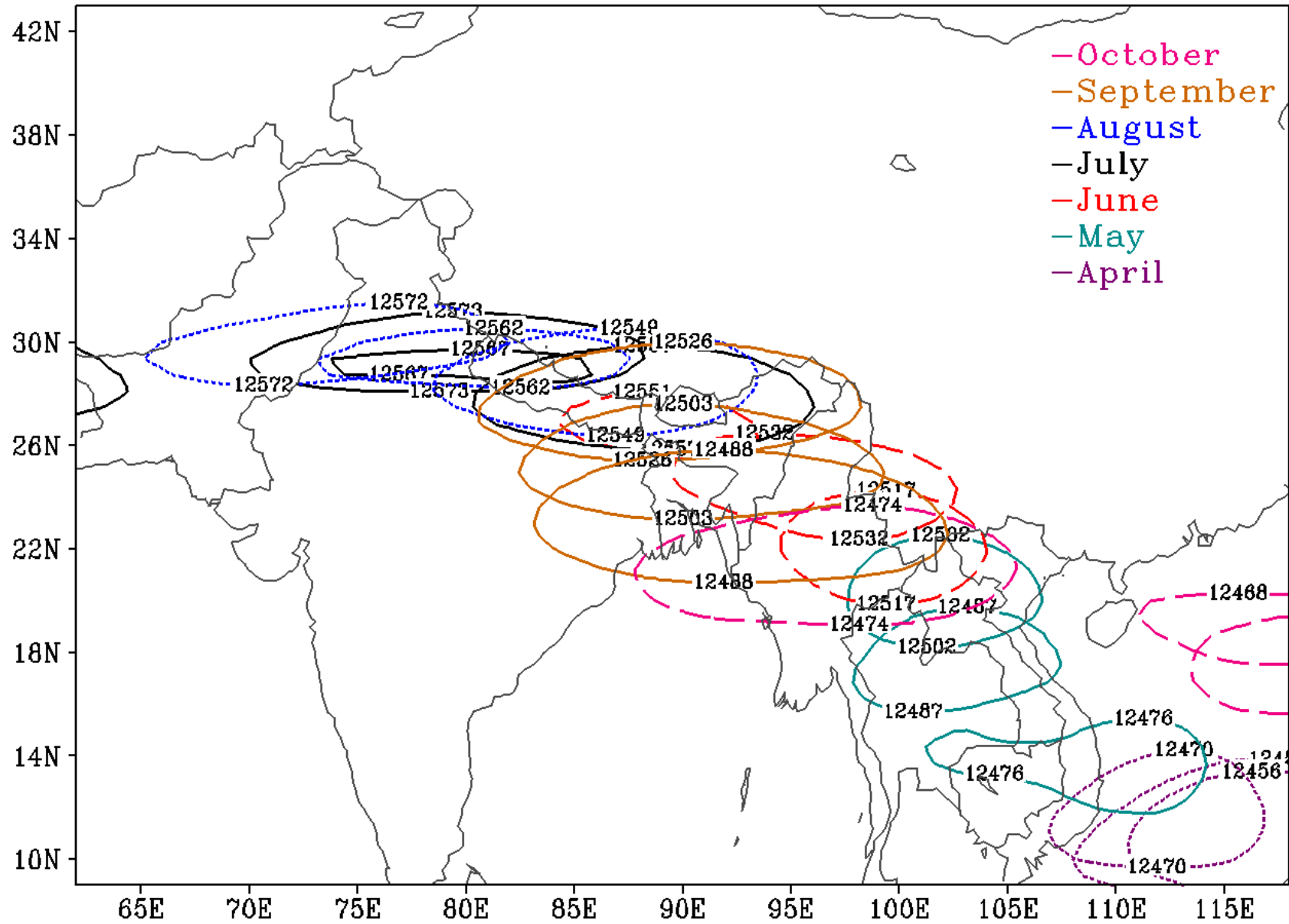
JetStreams and Geopotential Height 200hPa-Lon:40-55E



Summer Atmospheric Circulation Components over Southwest Asia (SWA)

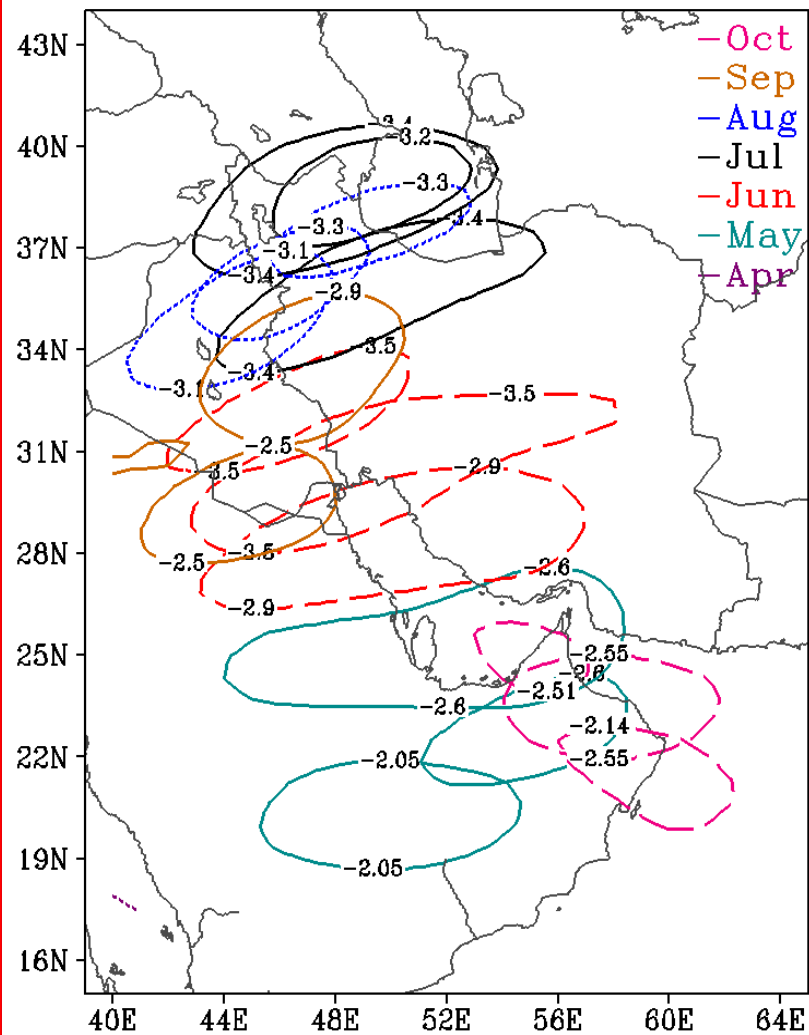
Subtropical Anticyclones

South Asia Anticyclone Position - 200hPa

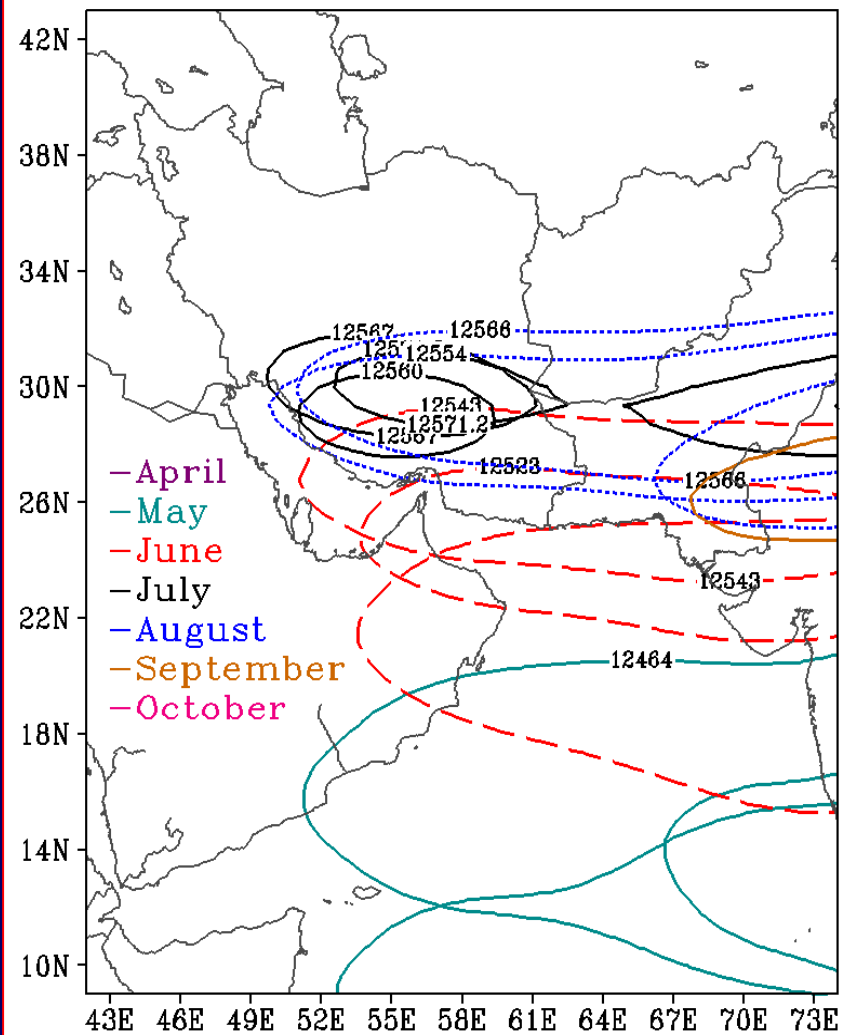


Iran Anticyclone

Iran Anticyclone-Vorticity200hPa

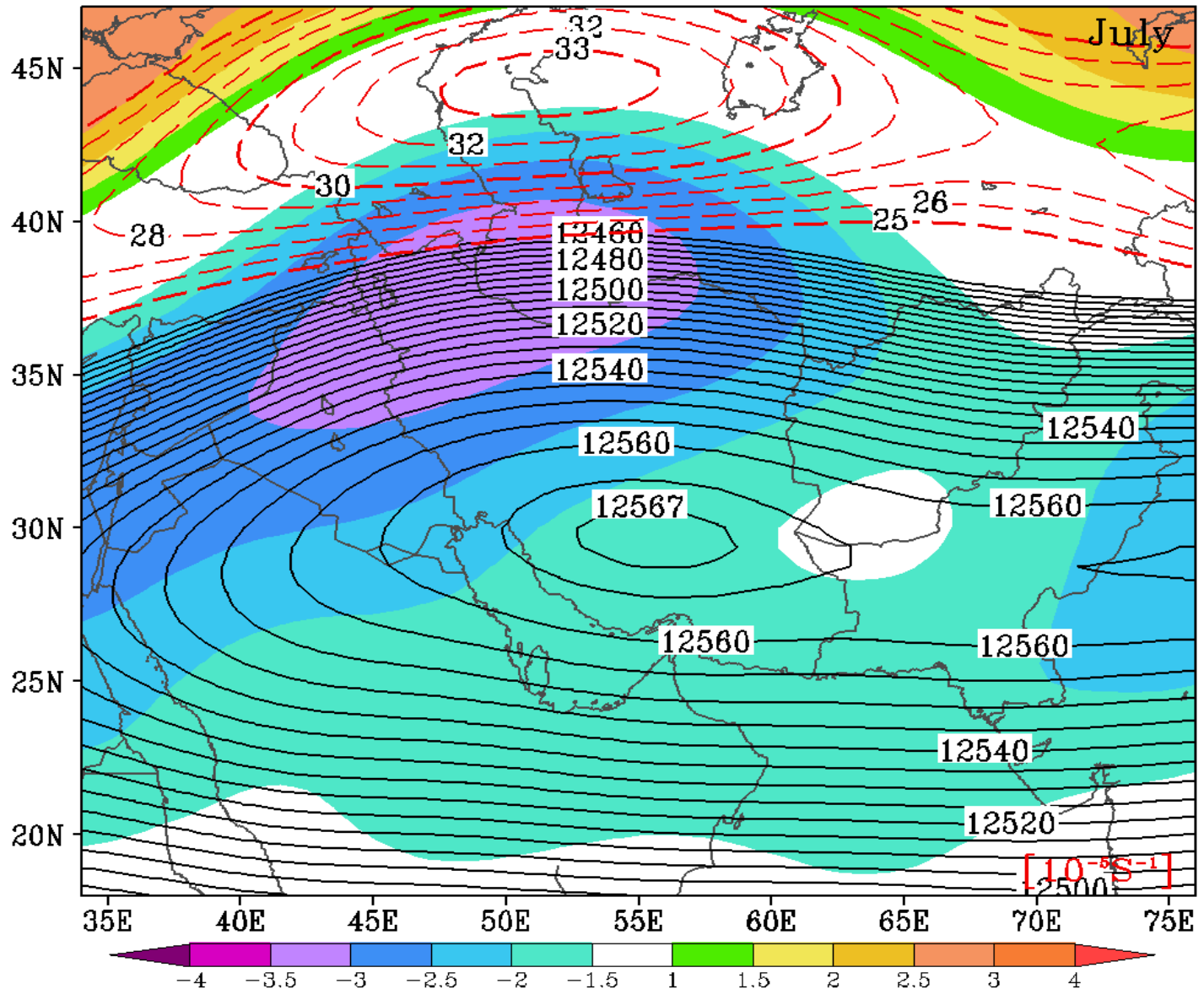


Iran Anticyclone Position-200hPa

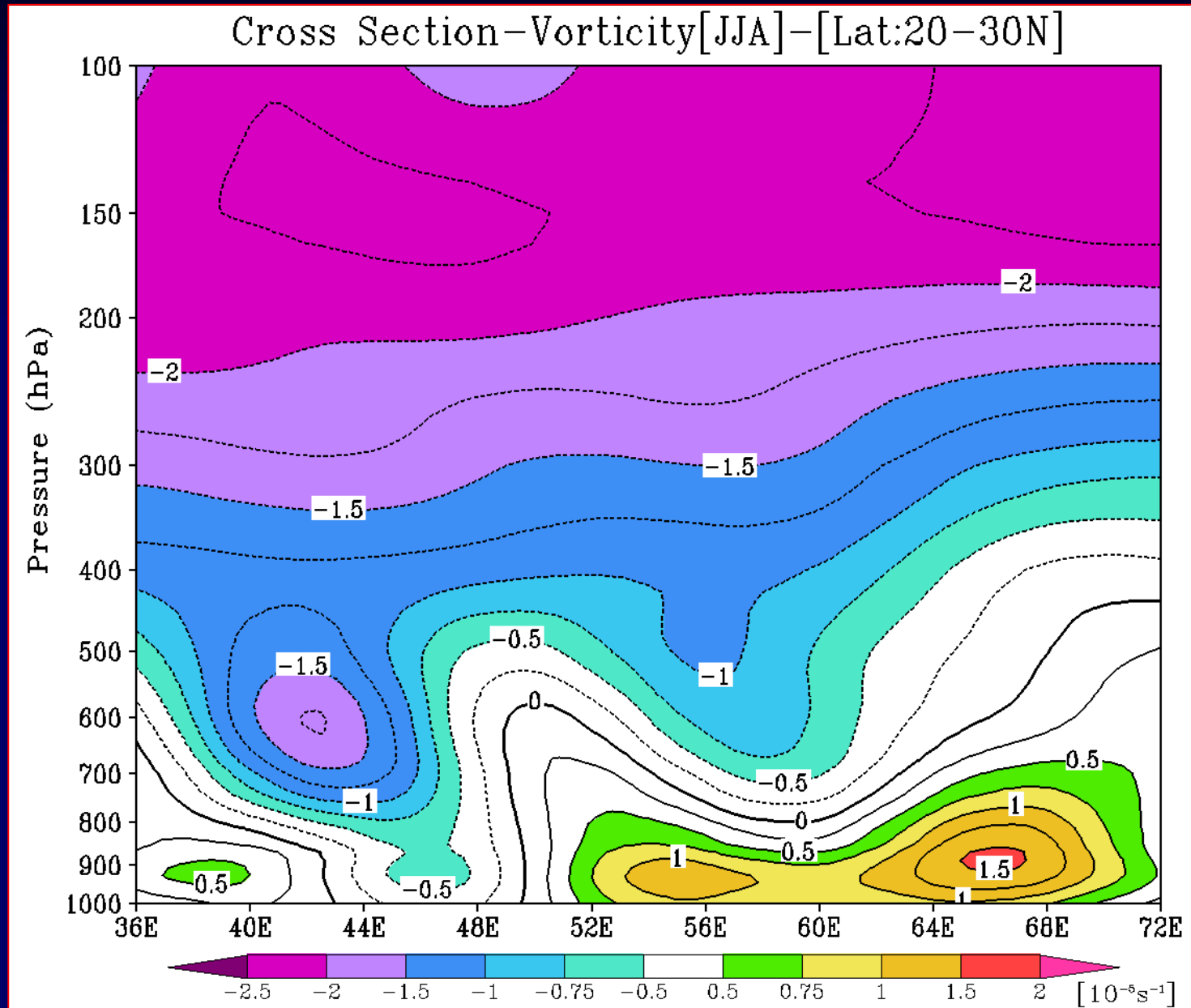


Anticyclone in upper troposphere

Uwind-Geopotential Height and Vorticity 200hPa

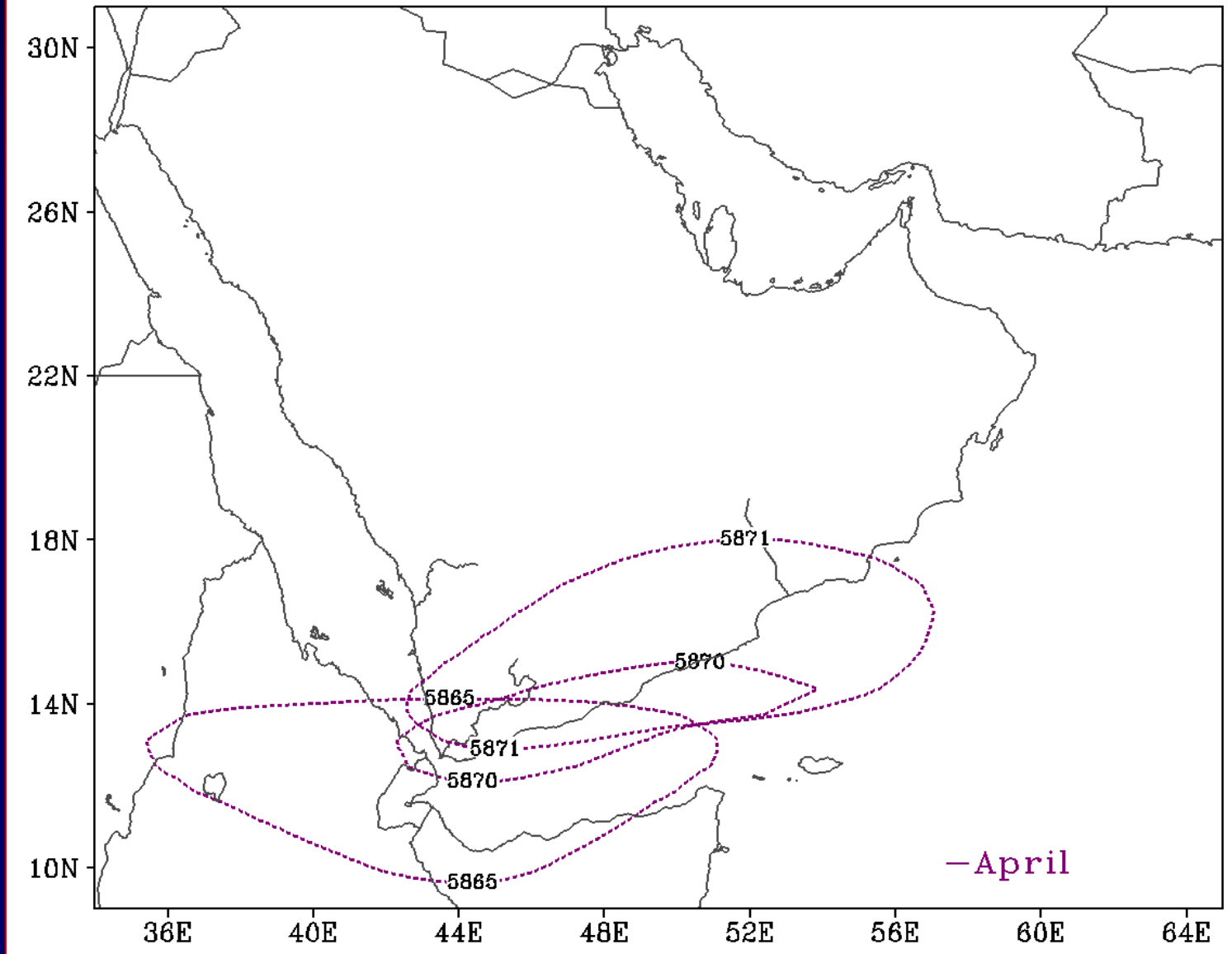


Arabian Anticyclone



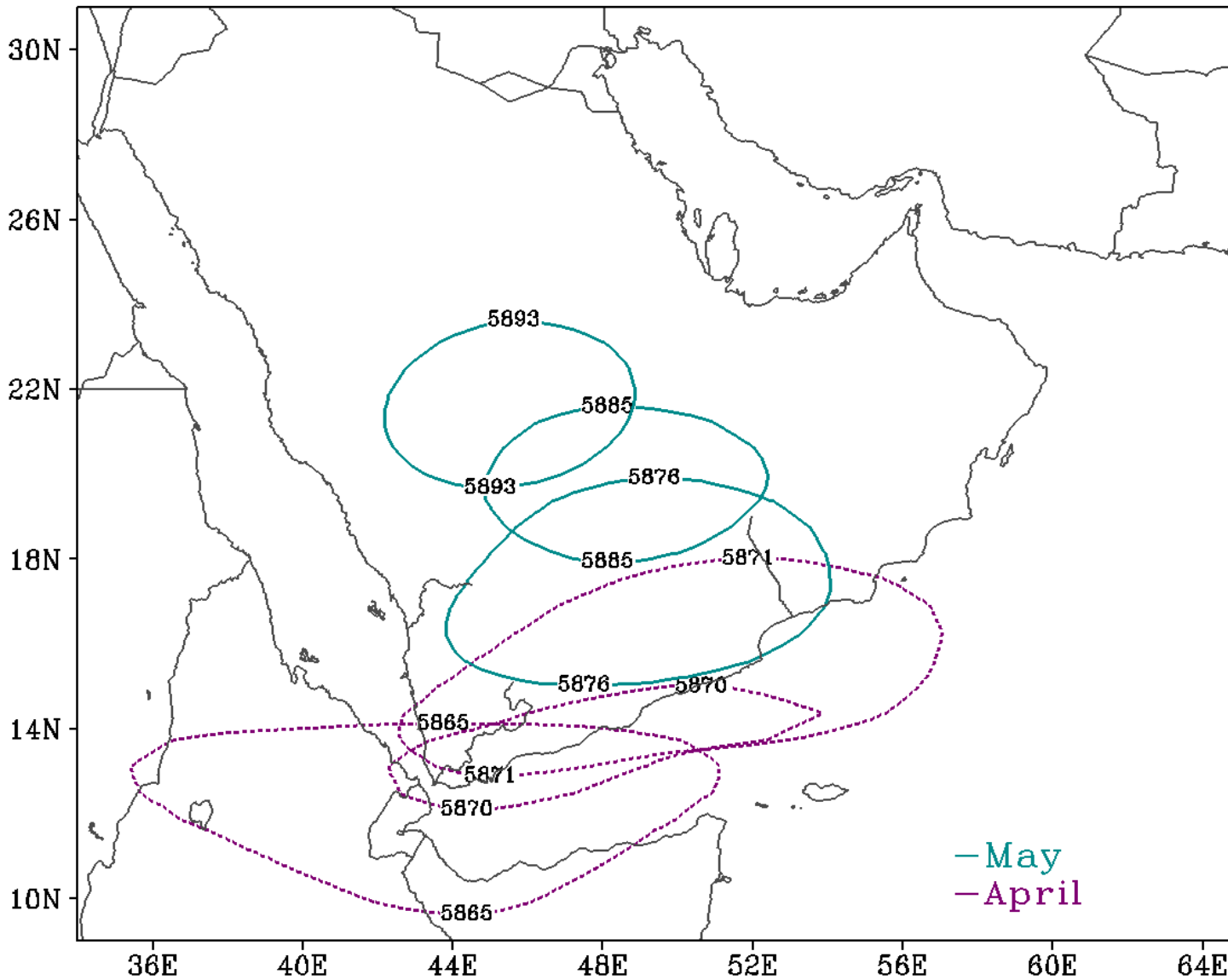
April-10 Days

Arabian Anticyclone Position-500hPa



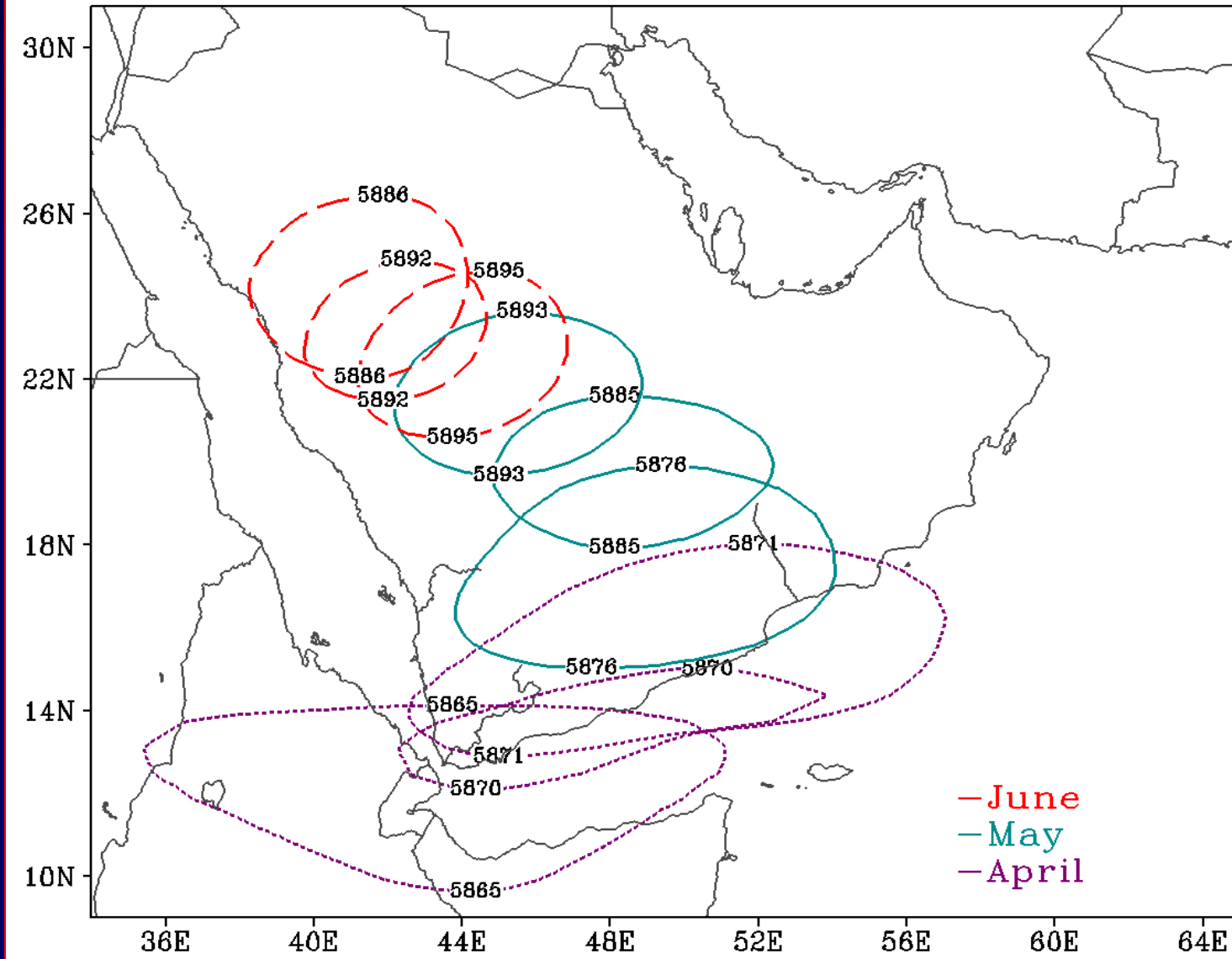
April to May-10 Days

Arabian Anticyclone Position-500hPa



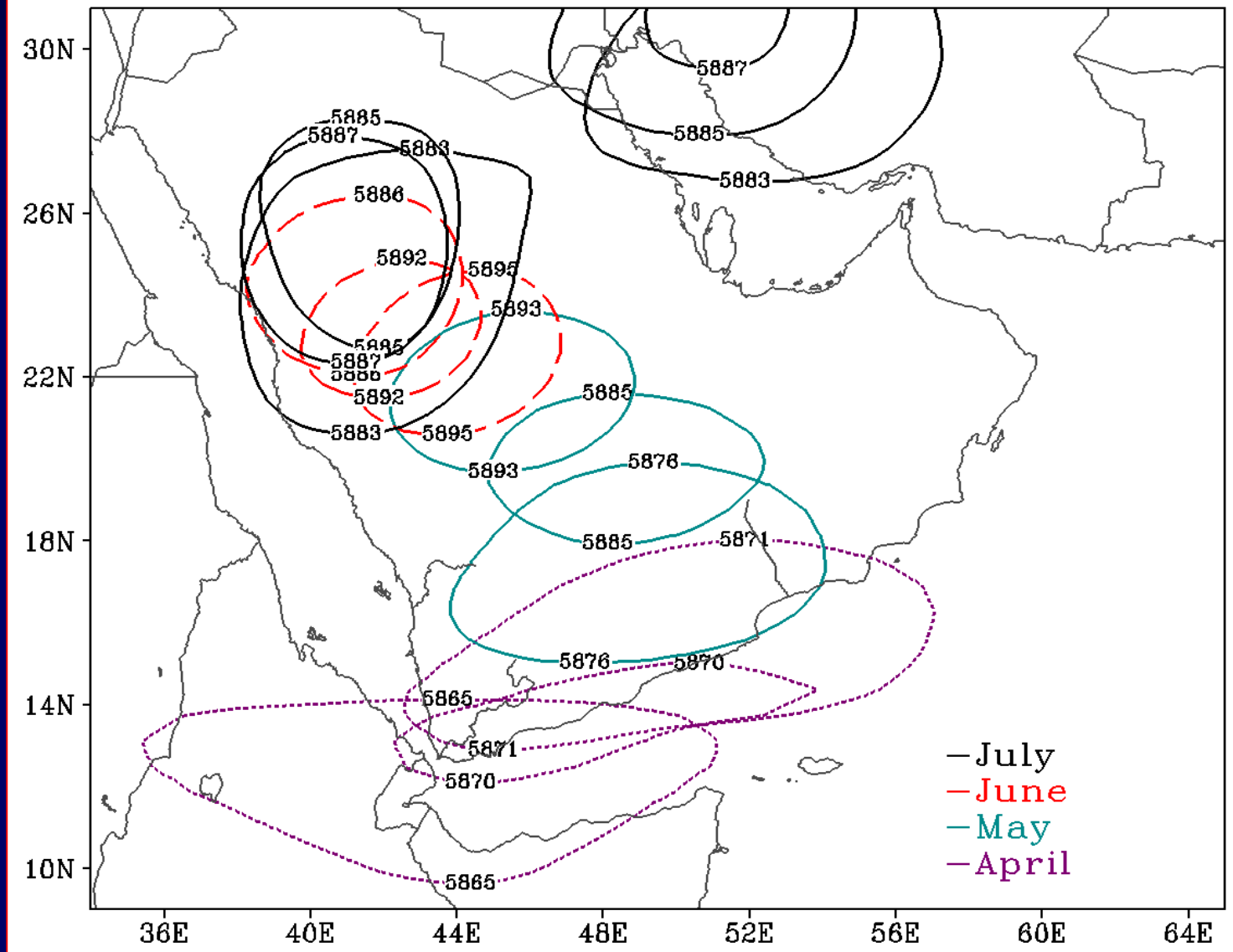
April to June-10 days

Arabian Anticyclone Position-500hPa



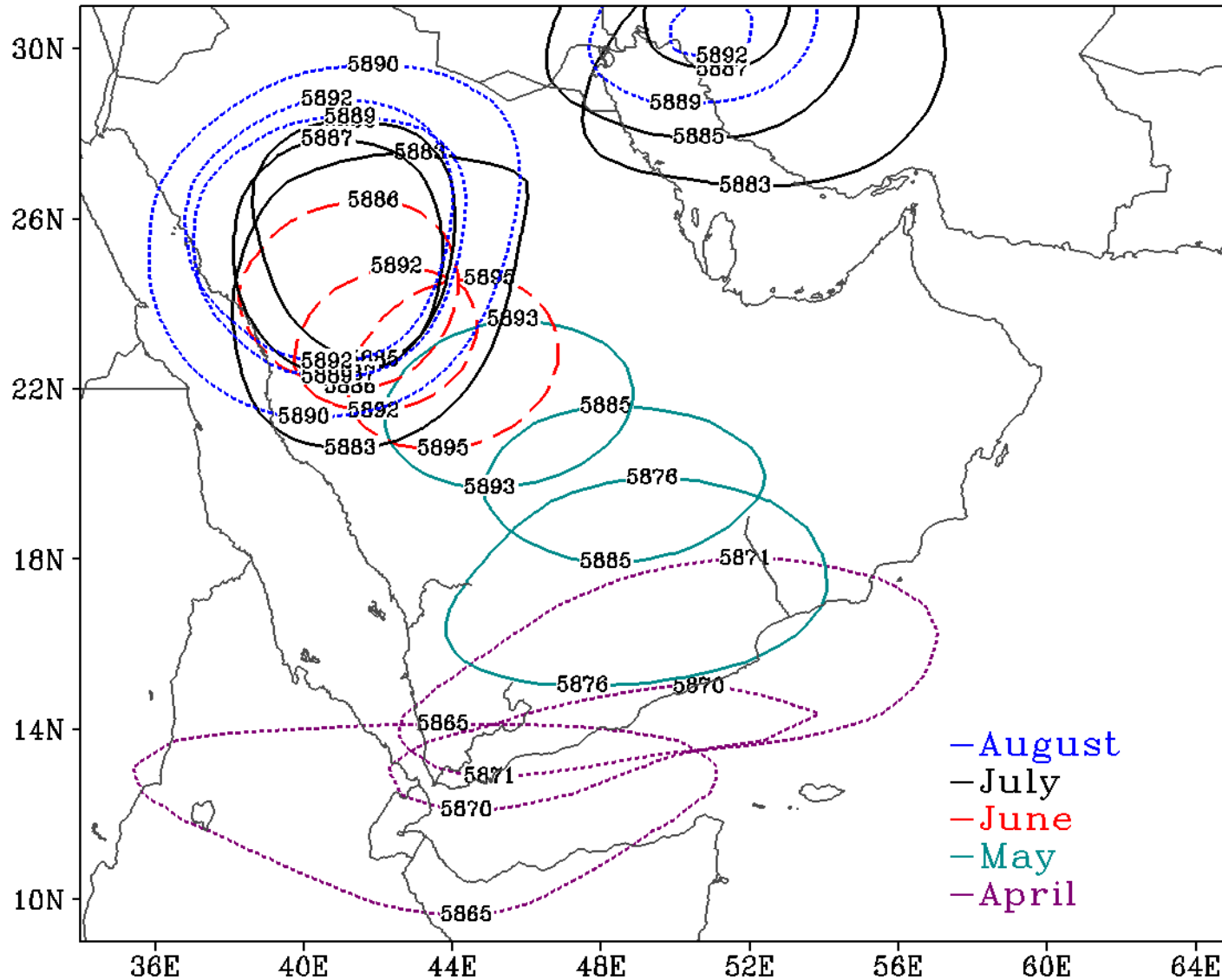
April to July-10 Days

Arabian Anticyclone Position-500hPa



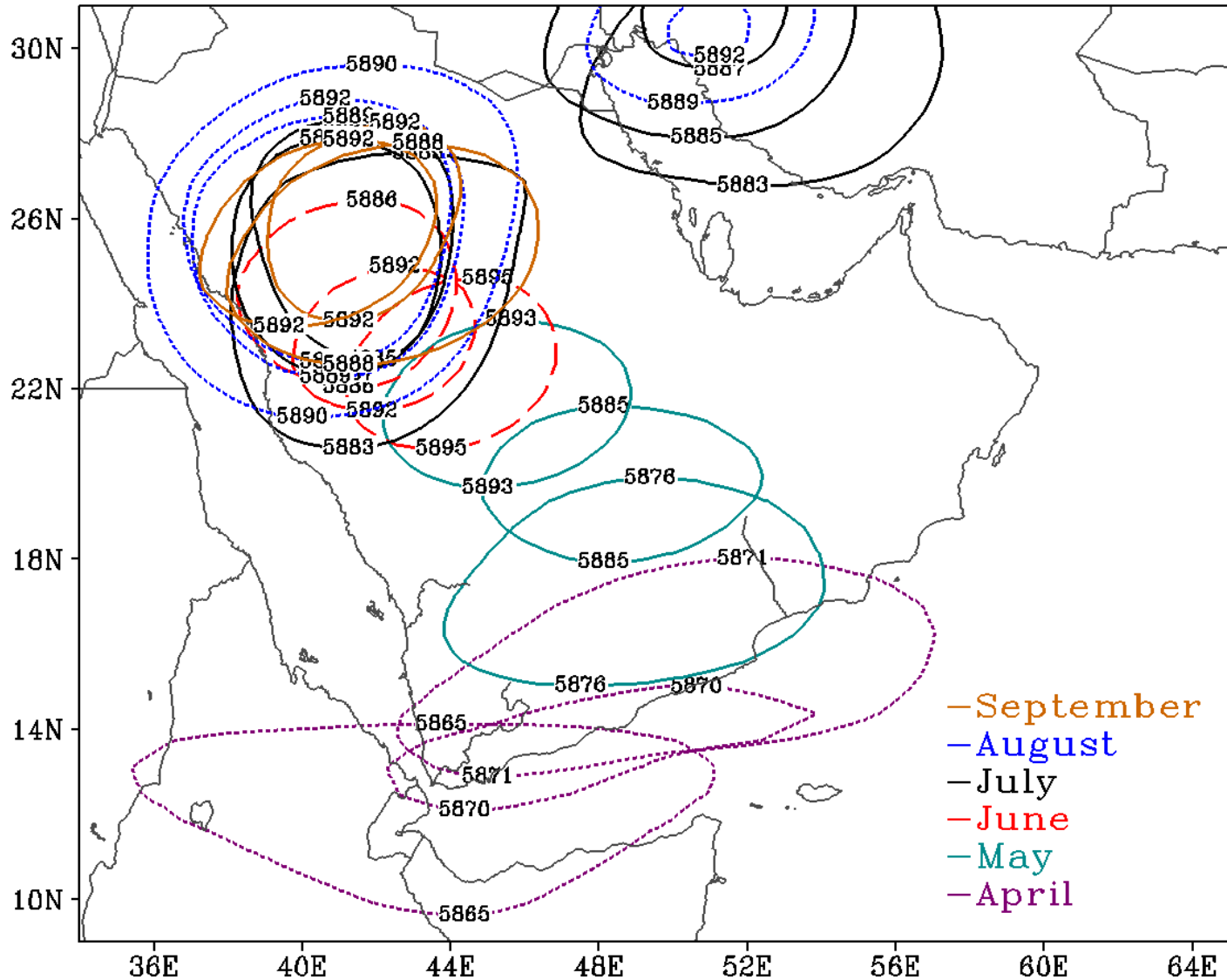
April to August-10 Days

Arabian Anticyclone Position-500hPa



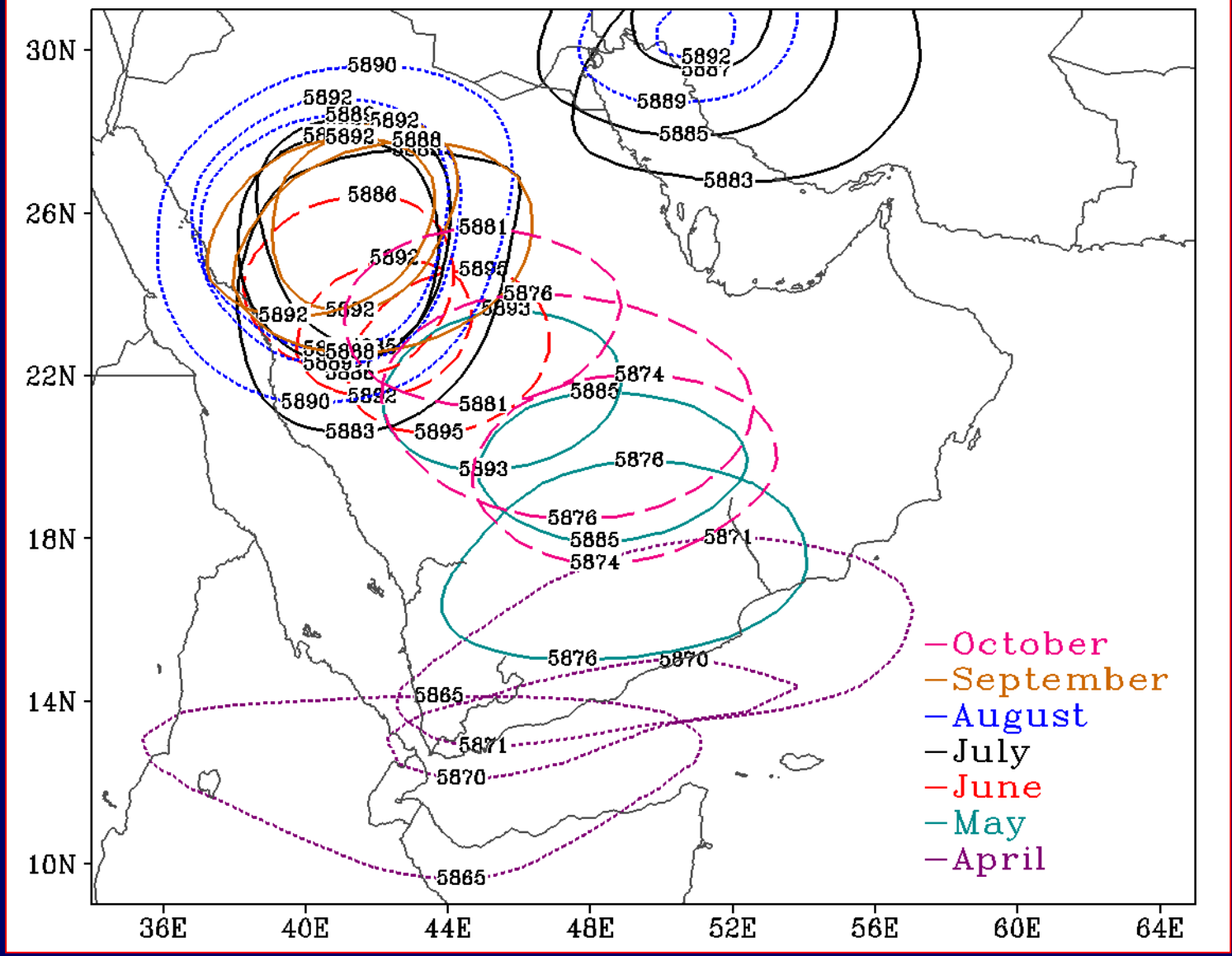
April to September-10 Days

Arabian Anticyclone Position-500hPa

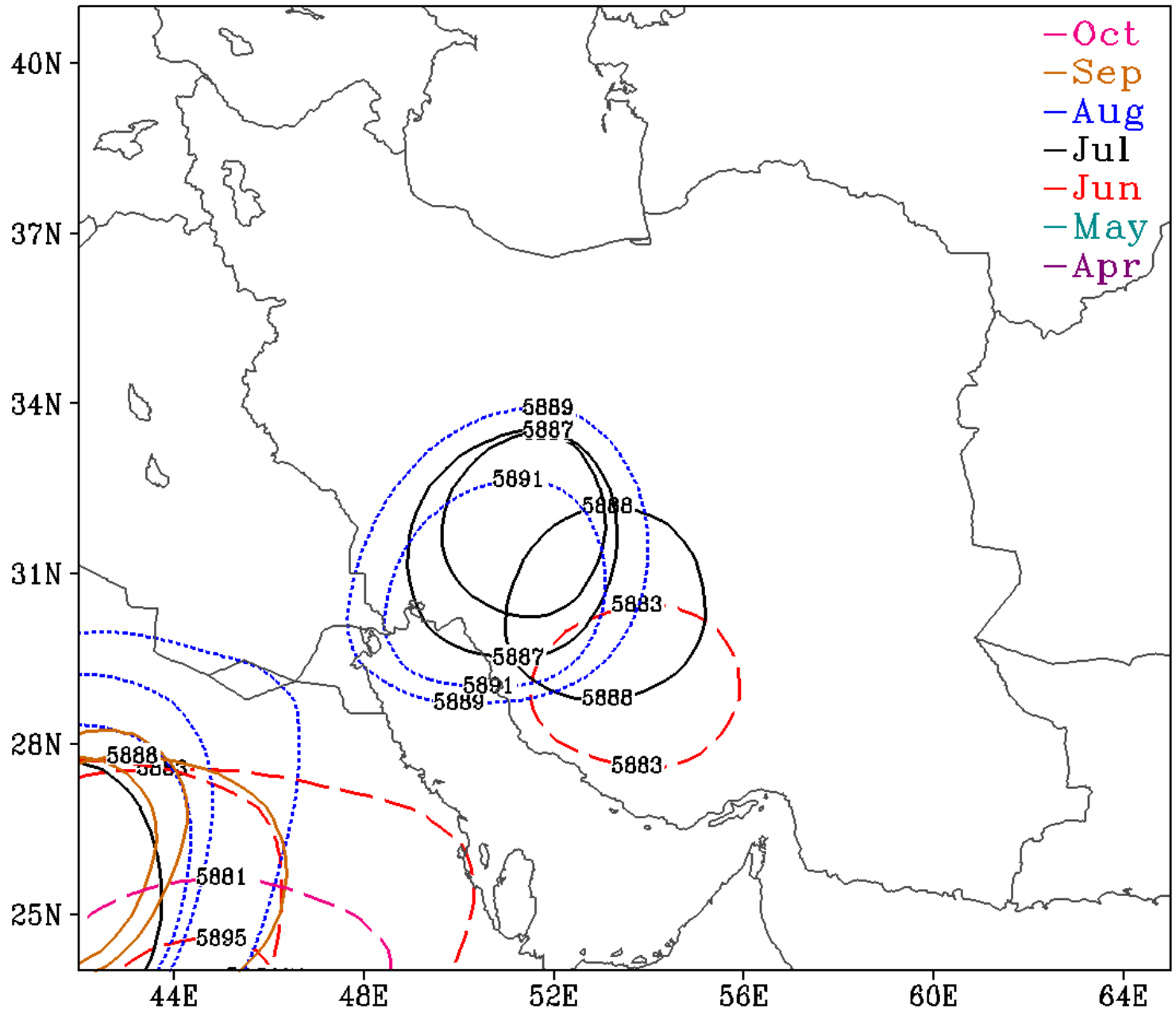


April to October-10 Days

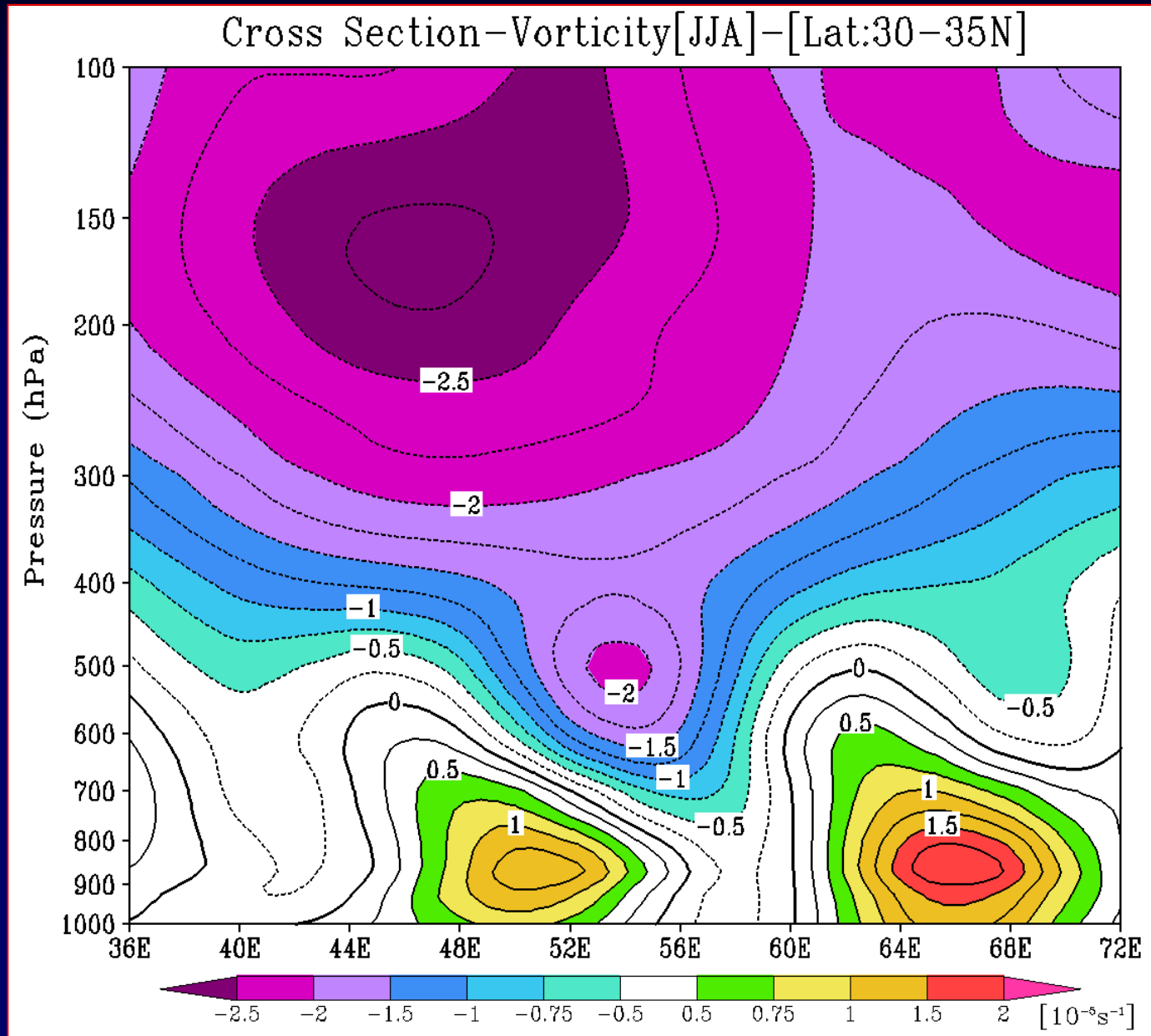
Arabian Anticyclone Position-500hPa



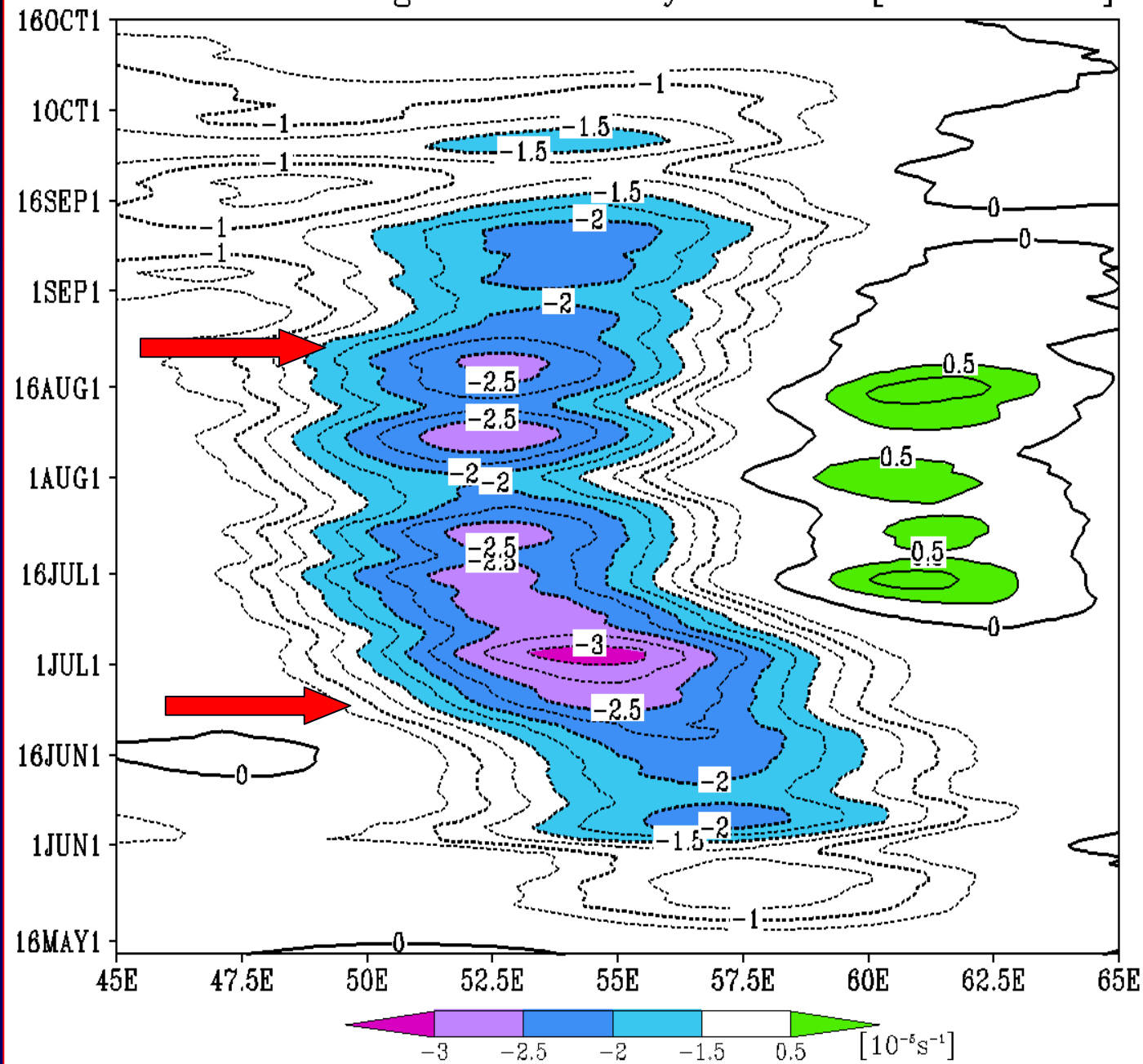
Iran Anticyclone Position-500hPa



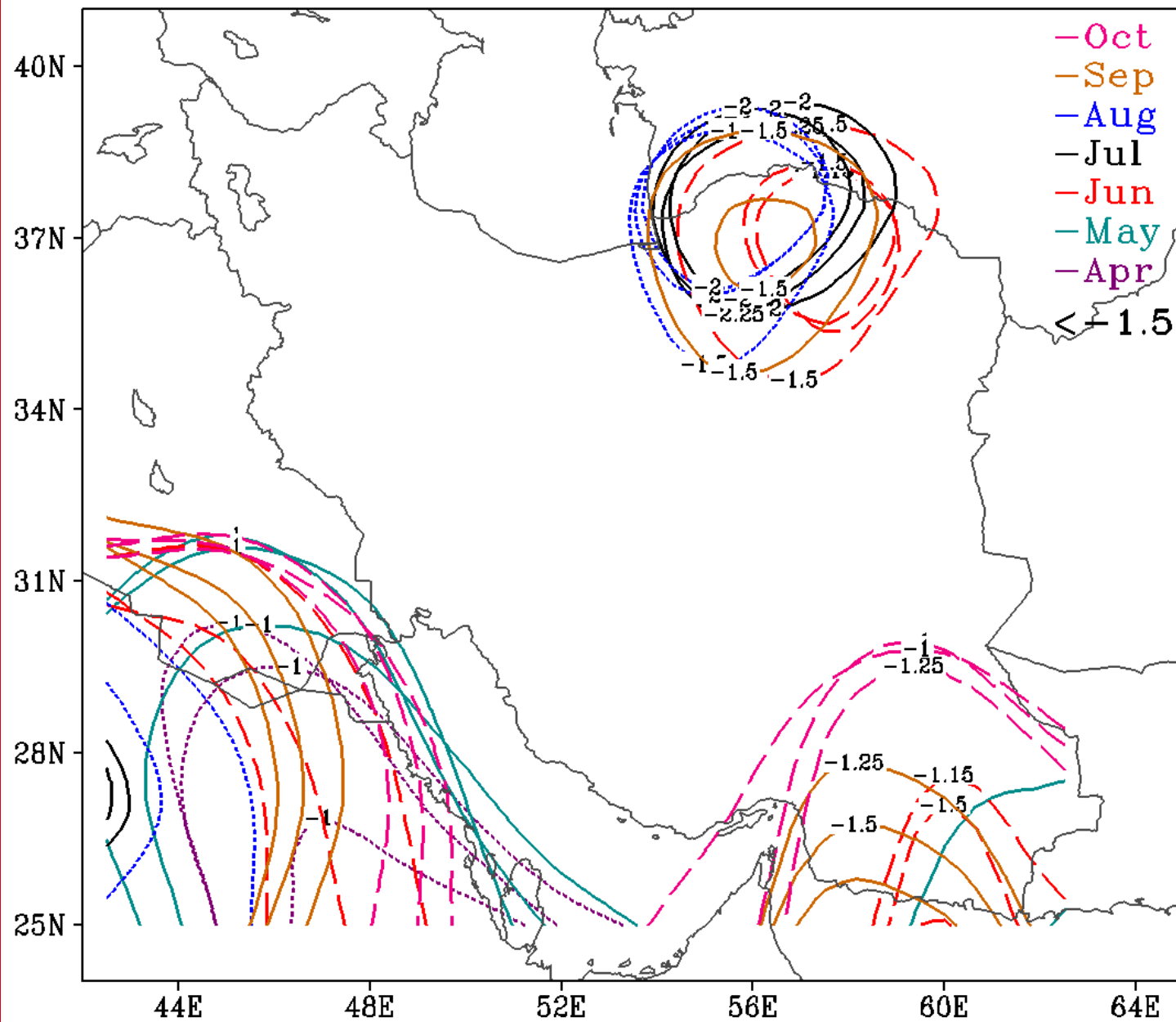
Iran Anticyclone



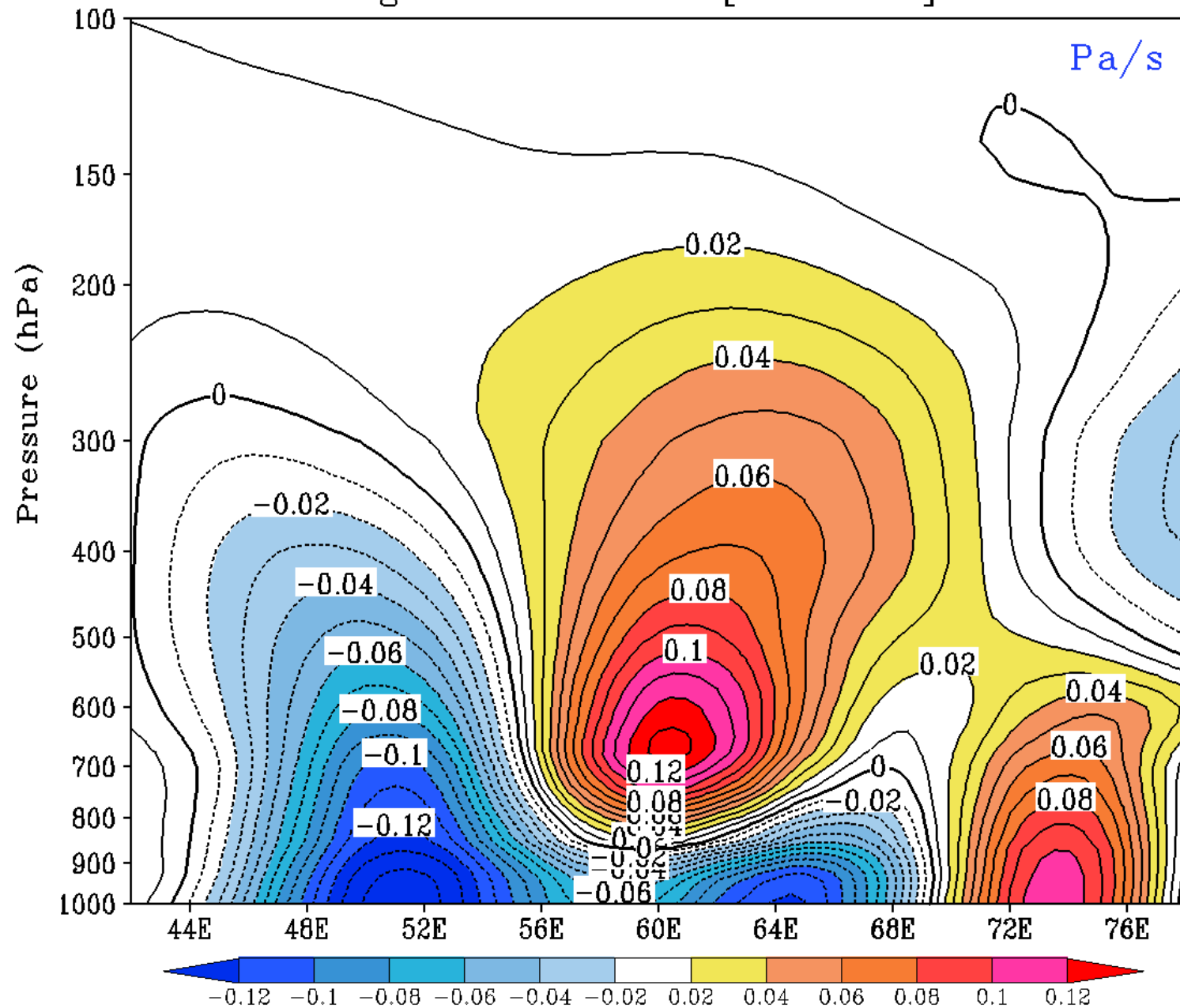
Hovmoller Diagram-Vorticity 500hPa-[Lat:30-35N]



Turkmenistan Anticyclone Position-Vort:700hPa

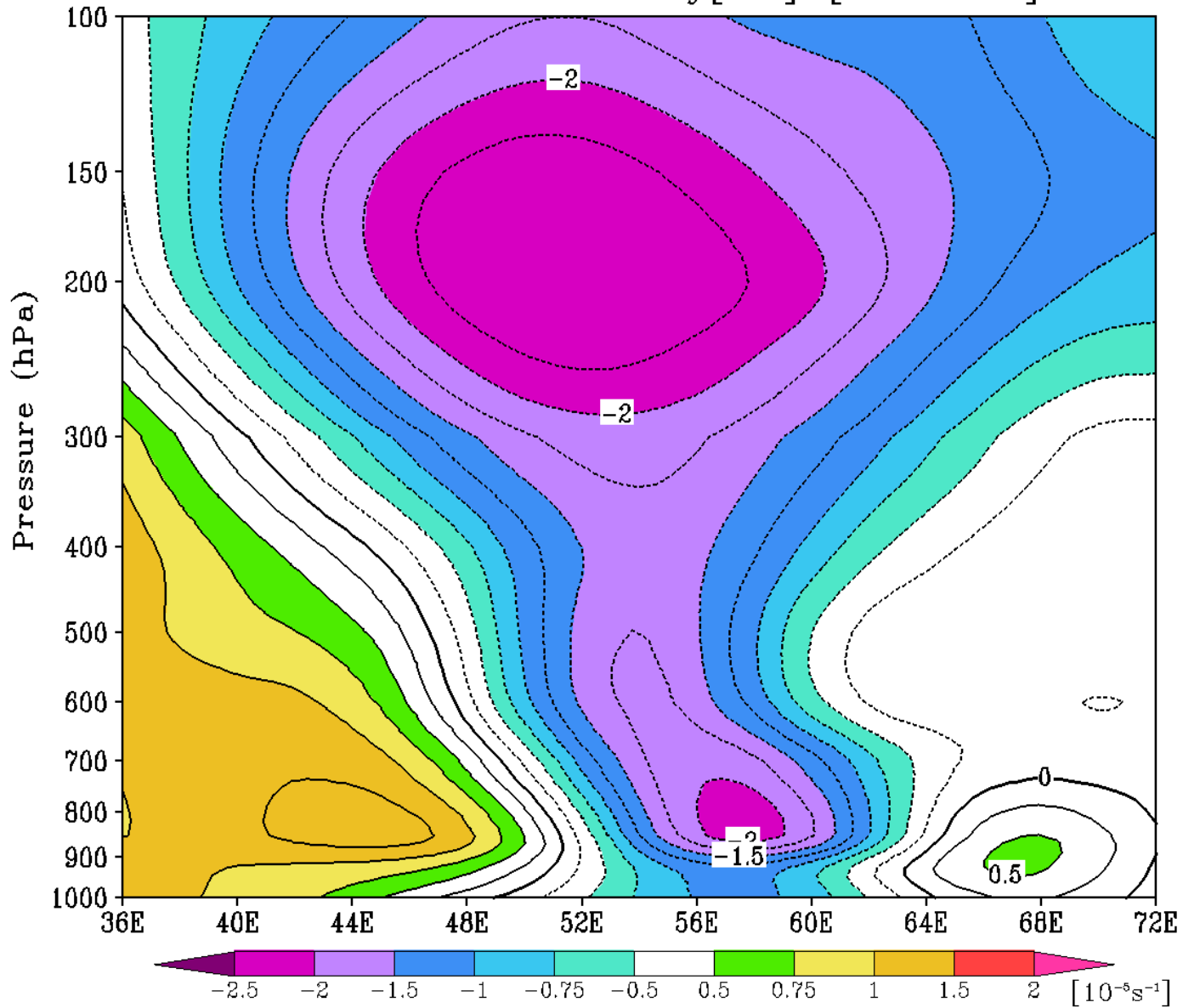


Omega Cross Section [Lat:37.5N] - JJA



Turkmenistan Anticyclone

Cross Section - Vorticity [JJA] - [Lat: 37.5N]

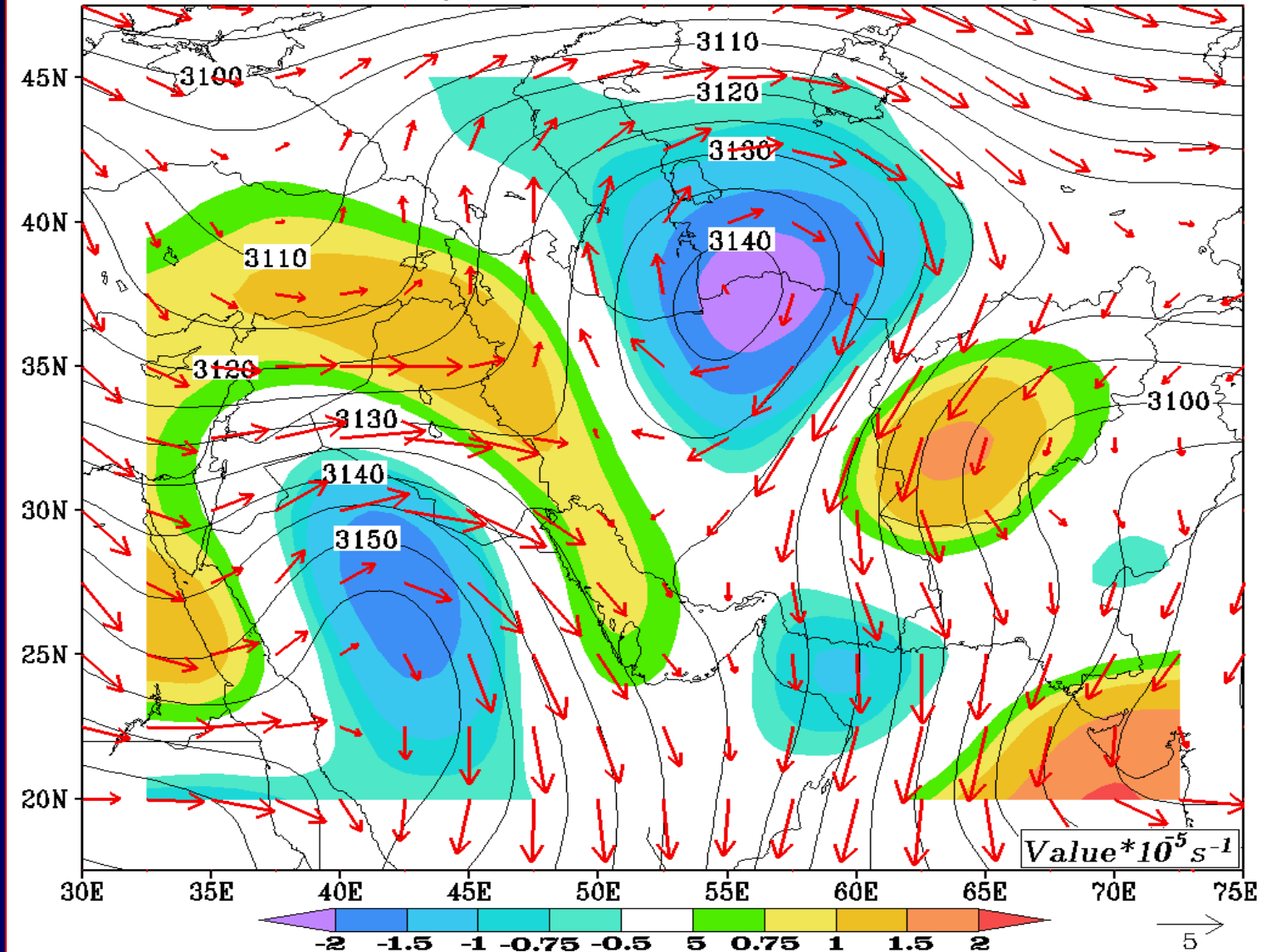


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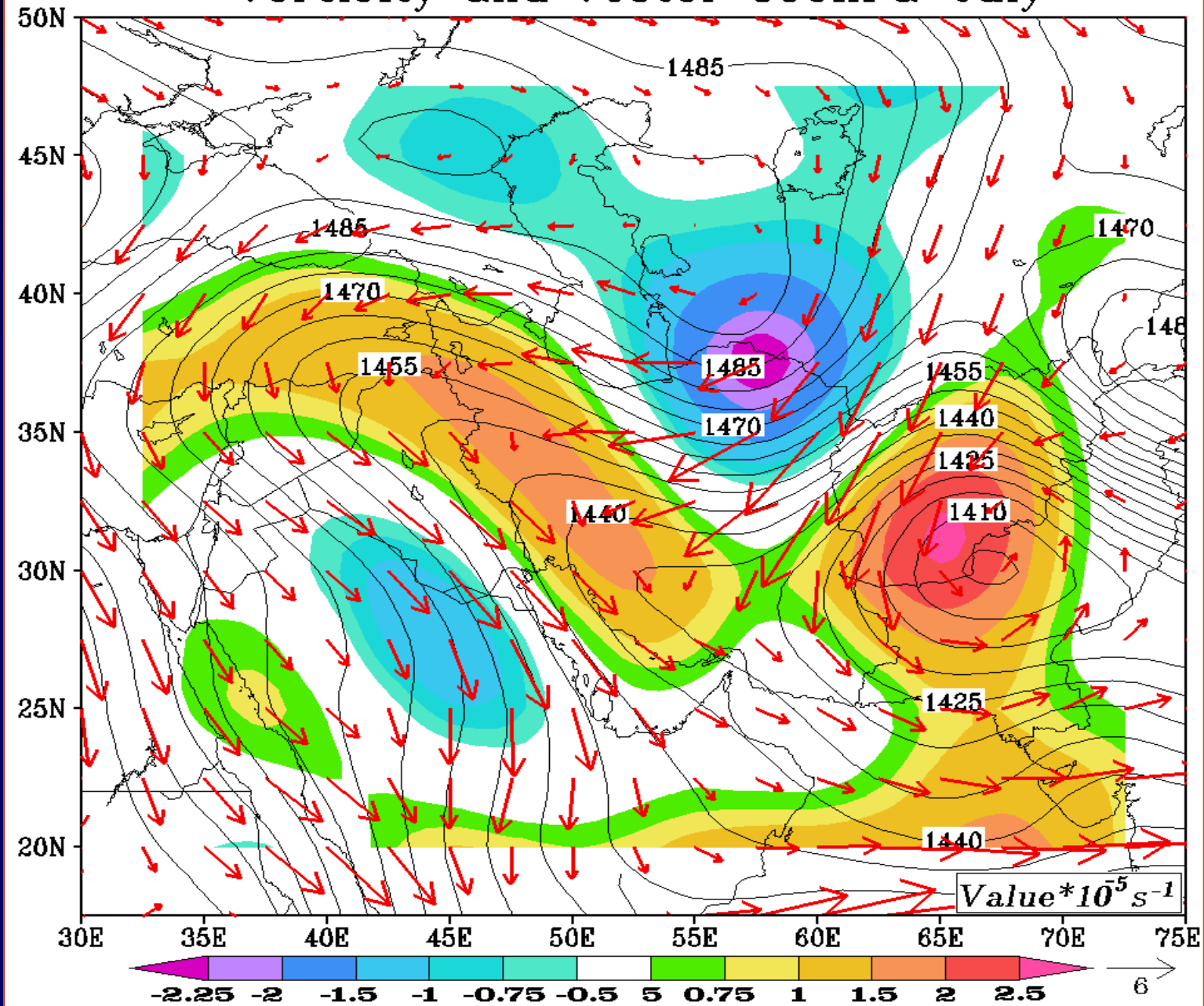
Low pressures and Troughs

Low Pressures and Troughs

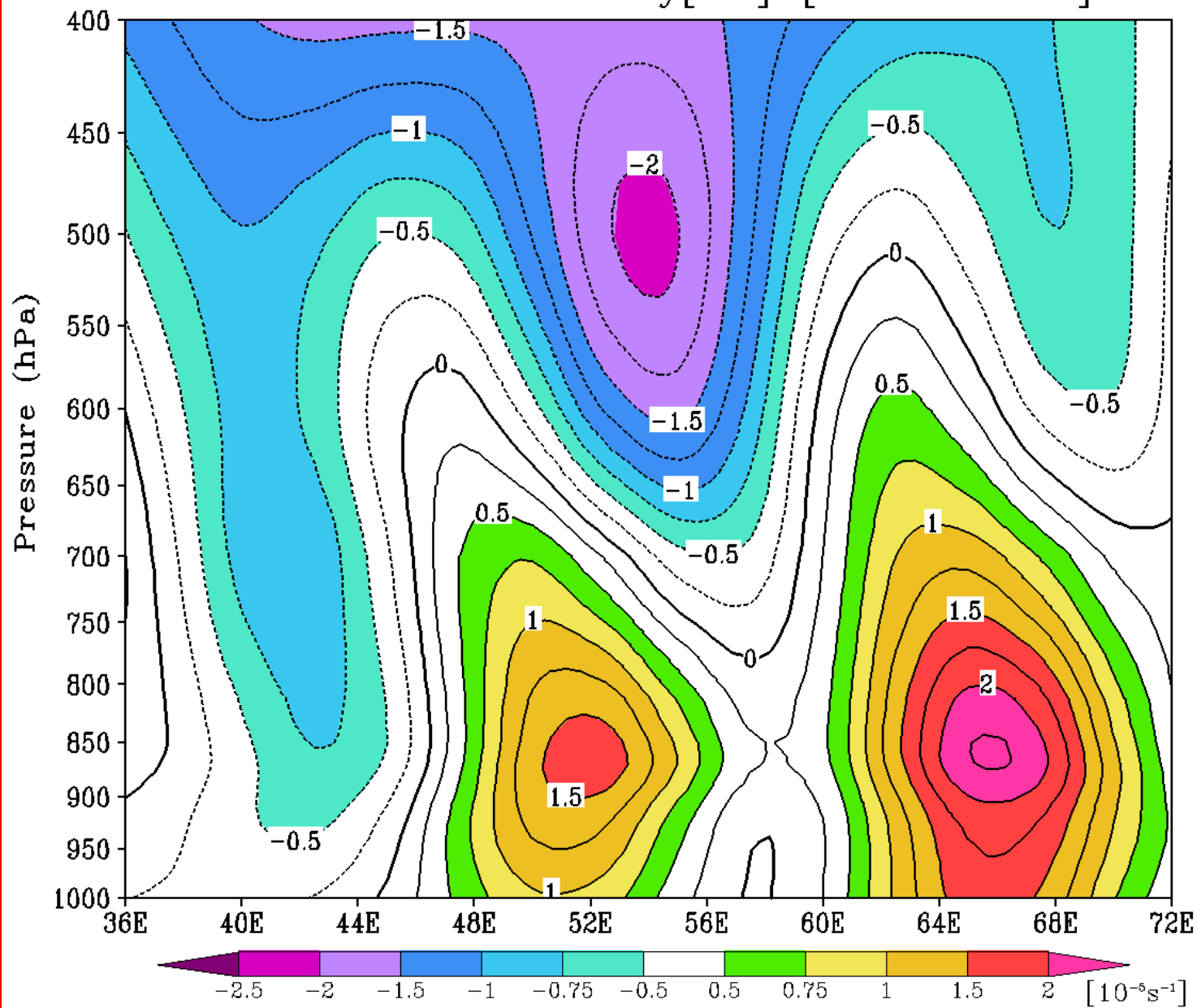
Vorticity and Vector 700hPa-July



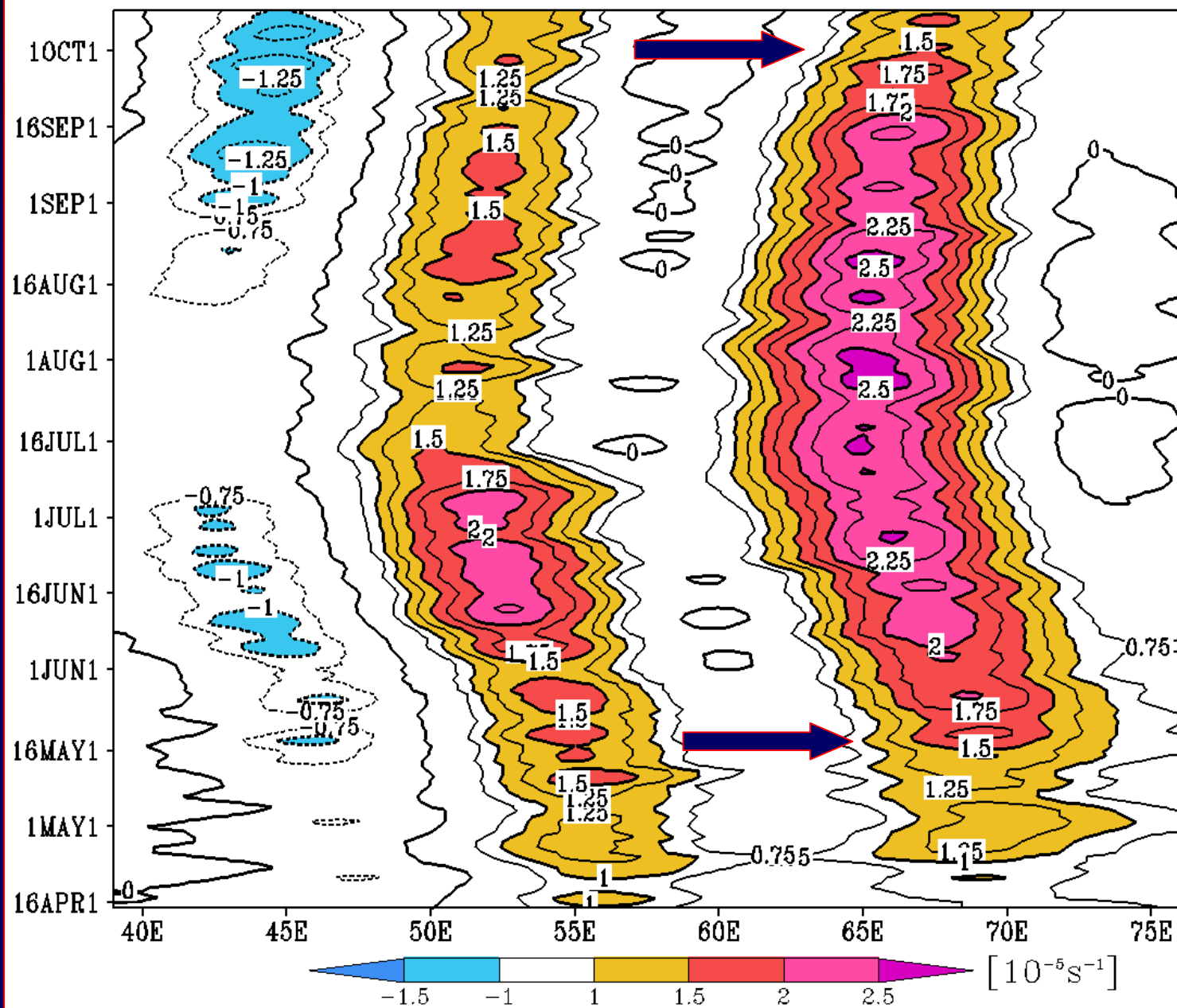
Vorticity and Vector 850hPa–July



Cross Section - Vorticity [JJA] - [Lat:30-32.5N]



Vorticity 850hPa-Longterm Mean-[Lat:30-32.5N]



Conclusion

- ❑ Summer circulation over SWA shows a Quasi-Stationary structure.
- ❑ Various anticyclones with different nature can be found over SWA.
- ❑ Composition of the high and low pressure centers with different intensities in different levels cause the complex atmospheric conditions over SWA in summer.



Thank you

