Comparison of the defined features at different locations on the track during total solar eclipse 2006

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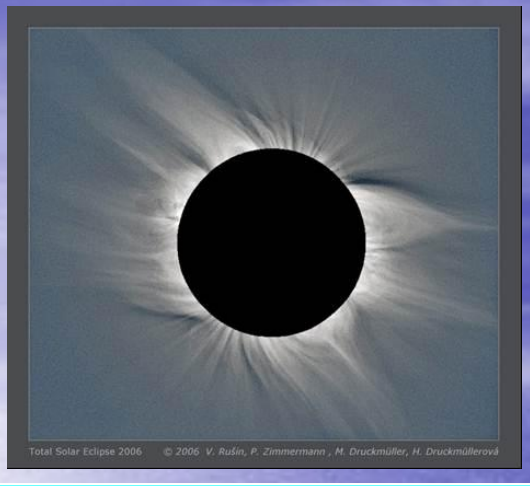
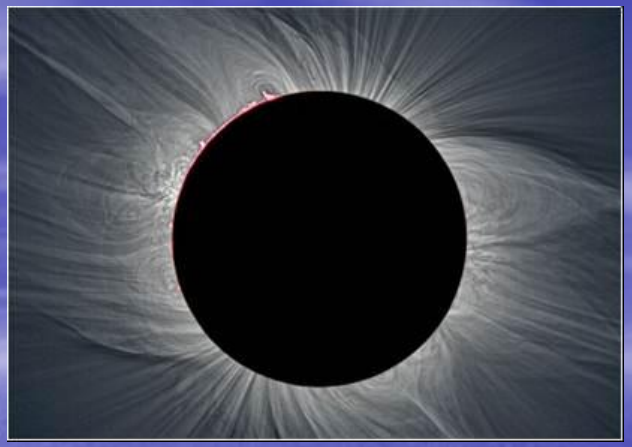
Data Used

- The track of total solar eclipse March 29th, 2006 started in Brazil at local sunrise (8:36 UT) and ended in northen Mongolia at local sunset (11:48 UT).
- We selected six locations from sunrise to sunset.

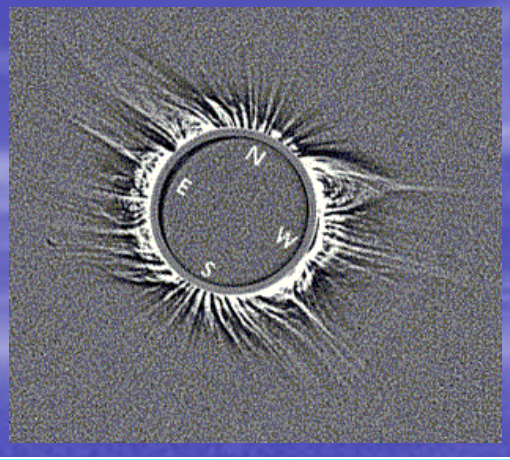
Place	Longitude	Latitude	Eclipse time	Eclipse Duration
Niger	12° 42.2' E	18° 34.56' N	09:37 UT	3min 54s
Libya	24° 14.3' E	30° 56.946' N	10:11:18 UT	4min 7s
Egypt	25° 7.65' E	31° 24.05' N	10:40 UT	3min56.5s
Kastellorize-island (Greece)	29° 35.6' E	36° 8.9' N	10:51 UT	2min58.9s
Manavgat, Turkey	31° 27.24' E	36° 45.46' N	10:54 UT	3min 11s
Near GÖreme , Cappadocia, Turkey	34° 52.147' E	38° 39.39' N	11:02:23 UT	3min 6s



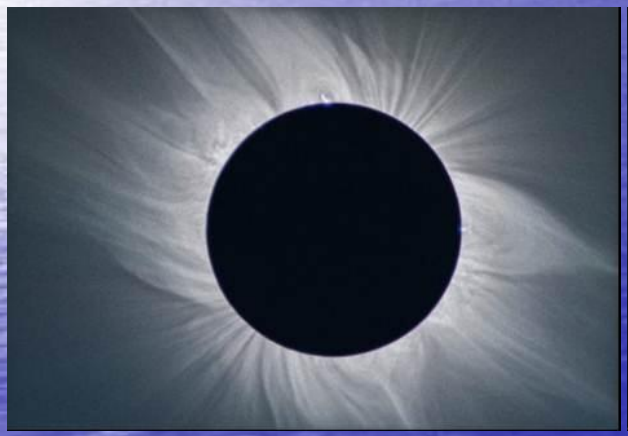
Processed Image of white light corona from Niger



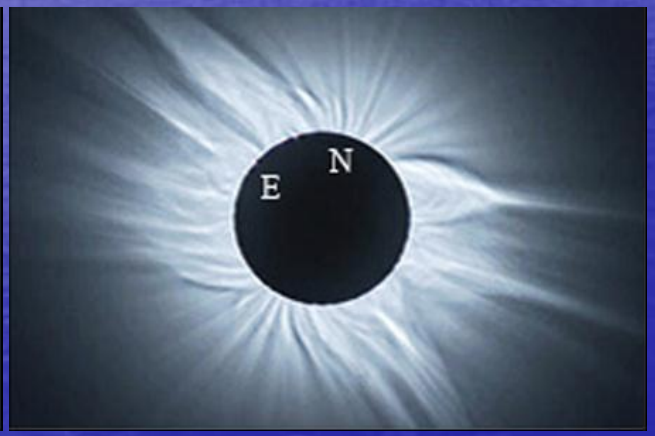
Processed Image of white light corona from Libya



Processed Image of white light corona from Egypt



Processed Image of white light corona from from Kastellorizo-island (Greece)

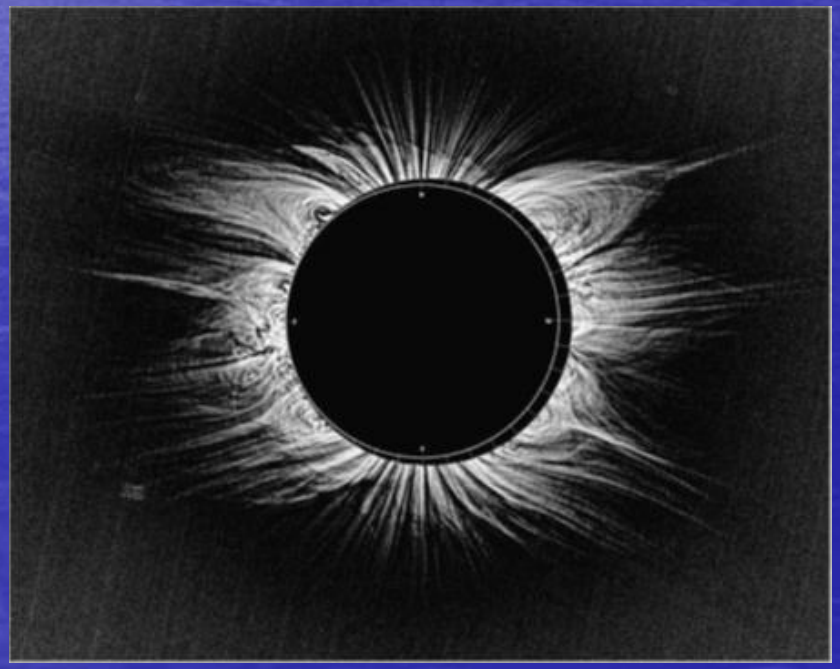


Processed Image of white light corona from Manavgat, Turkey

Processed Image of white light corona from Cappadocia, Turkey

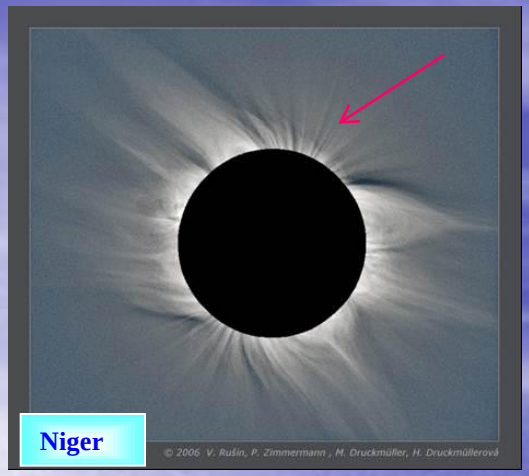
This Figures taken along the track of the total solar eclipse 2006 shows that, the basic coronal structures such as polar streamers and helmet streamers type structures.

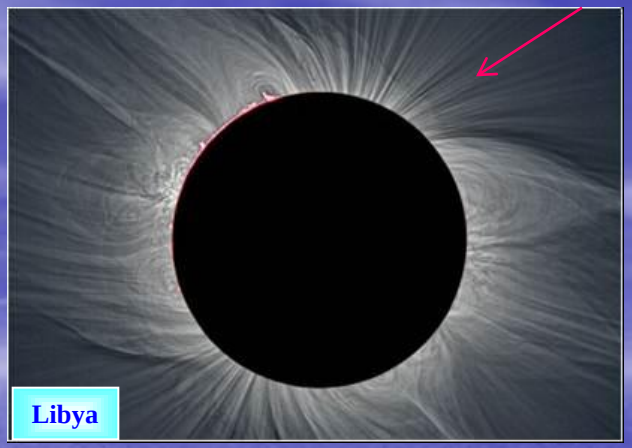
Ambroz et al. (2009) used our total solar eclipse 2006 images to applied the numerical processing method, based on the application of adaptive filters, was recently developed and applied by Druckmuller which is described in detail by Druckmuller et al. 2006. The processed image composite of 60 images and allow them to study both small and large scale coronal structures used our white light images during total solar eclipse.

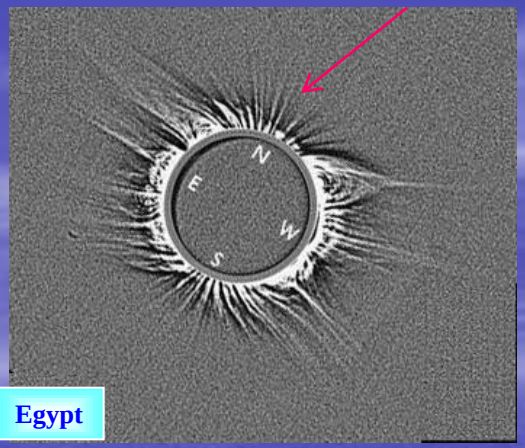


Discussions

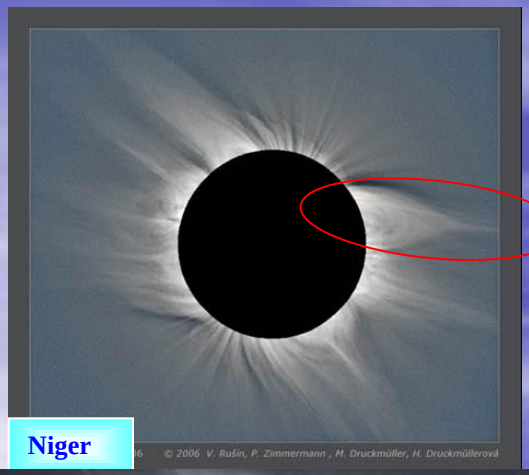
The previous Figures taken along the track of the total solar eclipse 2006 show the basic coronal structures such as polar streamers, dome-shaped structures and helmet streamers type structures.



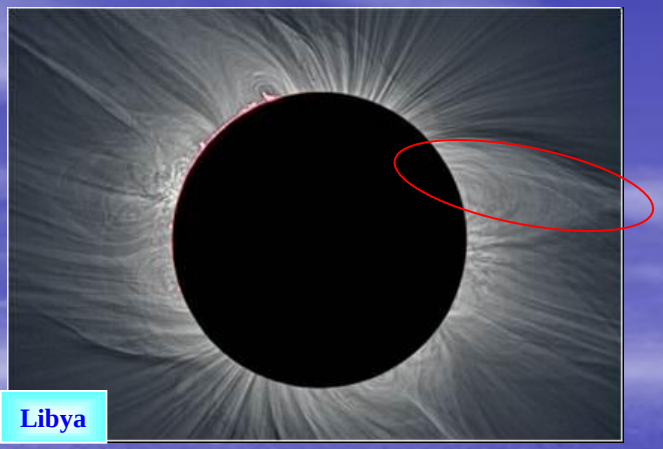




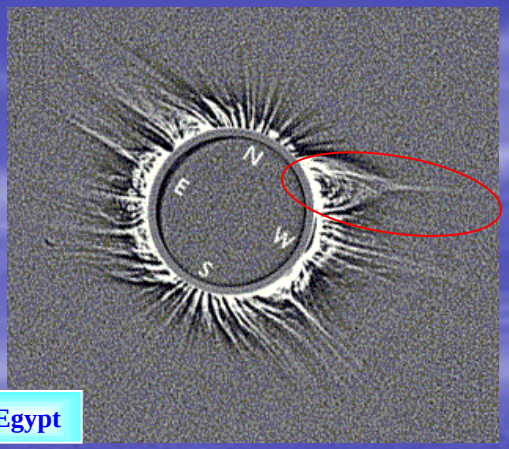
At north and south poles, we can see that the polar streamers are well developed, as exhibited in our processed images and processed images from Niger; Libya; Kastellorizo-island (Greece); Manavgat, Turkey and Near GÖreme, Cappadocia, Turkey sites. Narrow streamer near south pole shown from processed images in Niger; Egypt; Manavgat, Turkey; Near GÖreme, Cappadocia, Turkey sites.



Niger



Libya



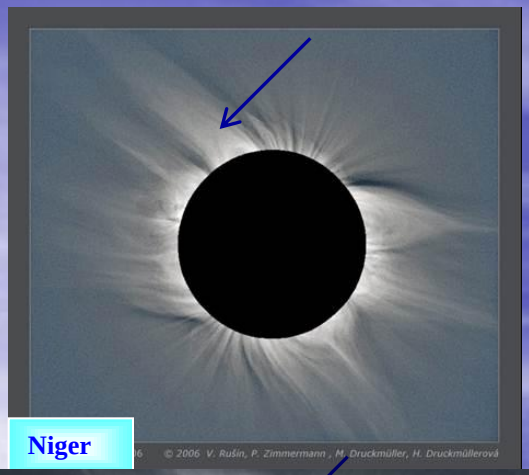
Egypt

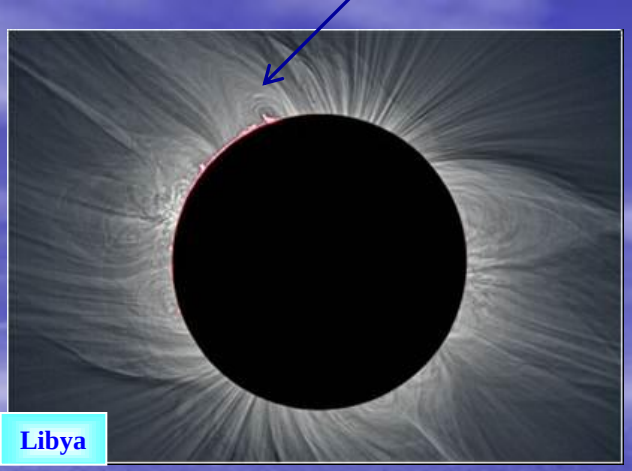
Kastellorizo-island (Greece)

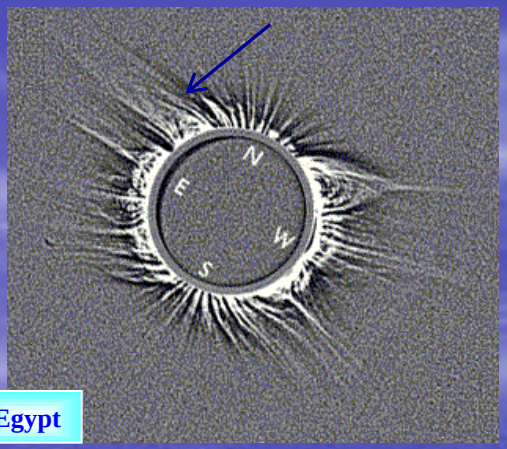
Manavgat, Turkey

Cappadocia, Turkey

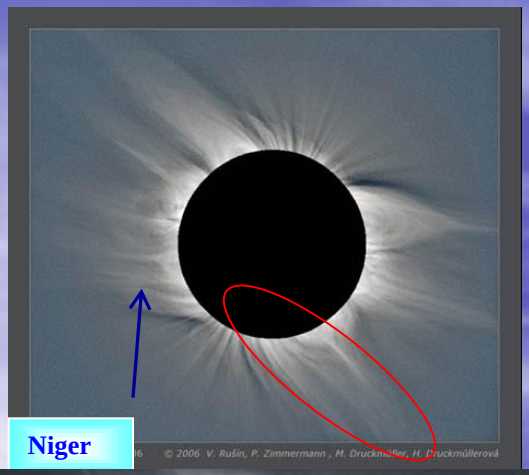
At northern hemisphere, we can see at northwest side closed helmet streamers rays extended up to 3.5 R_o and our processed image agrees with processed images taken at Libya ; Manavgat, Turkey and Near GÖreme, Cappadocia and Turkey sites, but not large extended in the processed images taken from Niger and the Kastellorizo-island (Greece) sites.

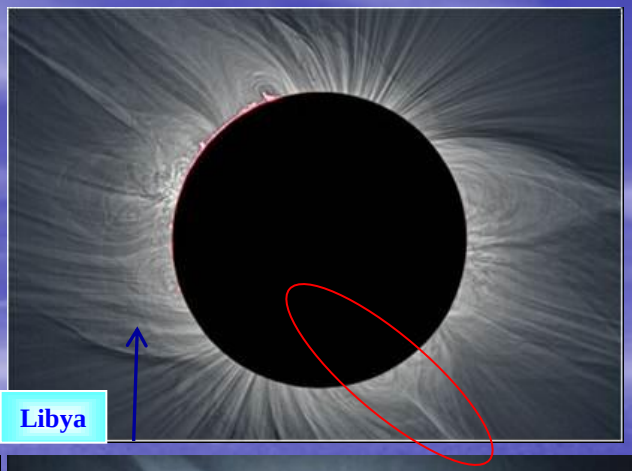


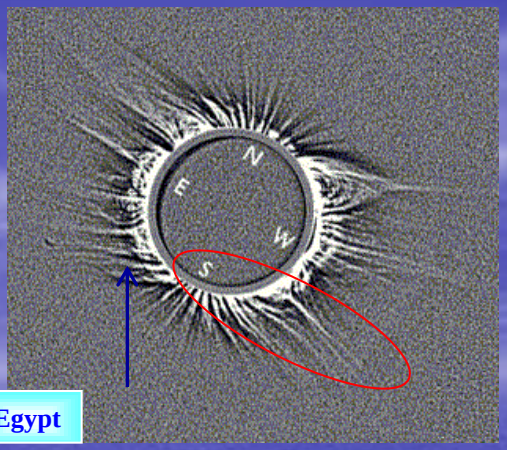


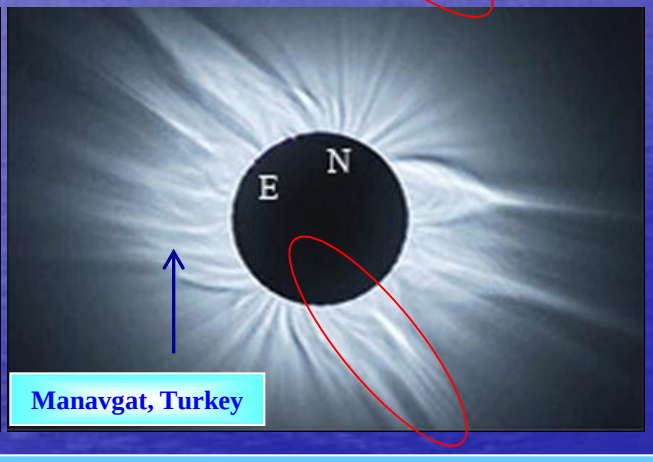


At northeast side we can see that, the opened helmet stream rays extended to 3.5 R_o in processed images from Niger; Libya; Egypt; Manavgat and Turkey but not far extended in the processed image from the Kastellorizo-island (Greece) site and their extension in processed image taken at Near GÖreme, Cappadocia and Turkey reach up to 5 R_o.









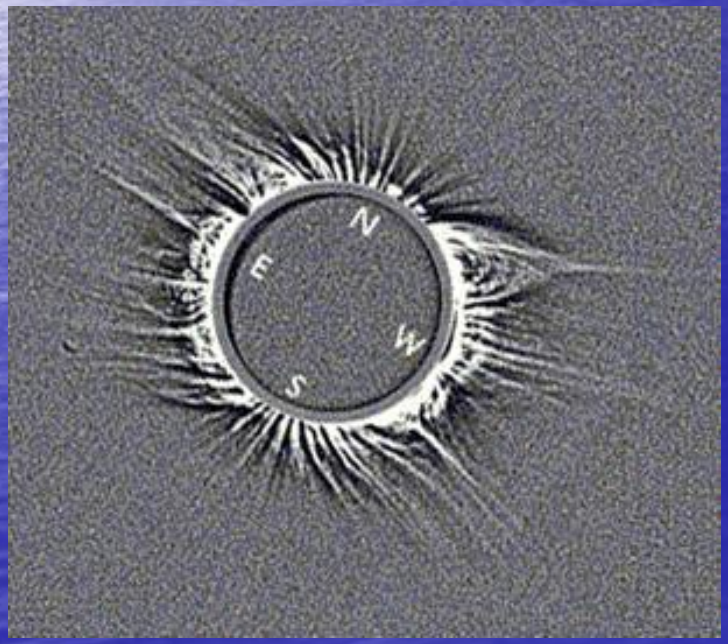
At southern hemisphere, we can see that, the south border of helmet streamers near a large coronal holes. Not large extended helmet stream rays at southeast sides in all processed images from Niger ; Libya ; Egypt ; Kastellorizo-island (Greece); Manavgat, Turkey and Near GÖreme, Cappadocia, Turkey sites. While good coincident large extended at northwest which shown in processed images from Niger; Egypt; Manavgat, Turkey and Near GÖreme, Cappadocia, Turkey sites but not large extended shown in processed images taken from Libya and the Kastellorizo-island (Greece) sites.

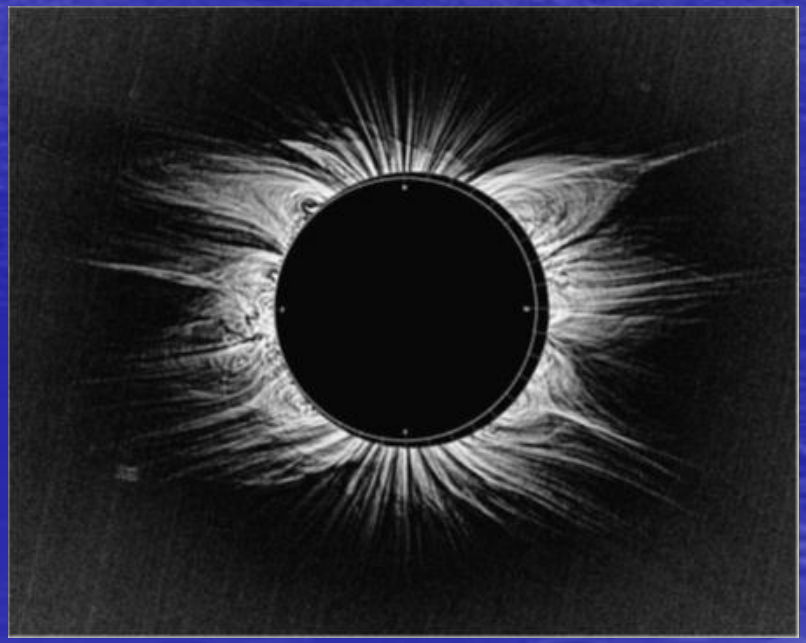
Prominences originating and which is developed at middle heliographic latitudes (25˚-45˚) are well outlined at the bottom of some large dome-shaped structures from processed image in Manavgat, Turkey (Stoeva et al. 2008).

Near the top of a very pronounced prominence in the helmet streamer at northeast from the processed image in Libya site is a small knot (Pasachoff et al. 2007).

Small prominence at northeast which is shown in the processed image taken from Egypt; the Kastellorizo-island (Greece) and Near GÖreme, Cappadocia, Turkey sites, while no prominence activity appear in Niger site.

Our processed image is in a good agreement with Ambroz et al. (2009) processed image where have the same open magnetic field lines at northern and southern poles. On other hand, good coincident of closed magnetic field lines at west north side, west south and near the equator. At east north side, we can see open magnetic field lines in both of our processed image and Ambroz et al. (2009) processed image. At east limb, we can see closed magnetic field lines.





Conclusions

❋**Comparison of the solar corona observed from 6 locations along the track of the total solar eclipse 2006 indicates the following.**

1- Basic coronal structures such as polar streamers and helmet streamers type structures were seen in the secured pictures.

2- Our processed image is in a good agreement with published images especially:

a- At north and south poles, we can see that the polar streamers are well developed.

b- At northern hemisphere, we can see at northwest side closed helmet streamers rays extended up to 3.5 $R_\odot$.

c- At northeast side we can see that, the opened helmet stream rays extended to 3 $R_\odot$.

d- At southern hemisphere, we can see that, the south border of helmet streamers near large coronal holes.

e- Small prominence at northeast which is shown in the processed image taken from Egypt; the Kastellorizo-island (Greece) and Near GÖreme, Cappadocia, Turkey sites, while no prominence activity appear in Niger site.

✵**The processed image is in a good agreement with published one by P. Ambroz et al. 2009 where we can notice that the same open magnetic field lines at northern and southern poles, closed magnetic field lines at west north side, west south and near the equator, and at east north side, we can see open magnetic field lines in both of our processed image.**

Acknowledgment

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Thank You