

# Activity of The Martian Encircling Duststorm 2018 2

## Dust storm due to cold air from the SPC

From the public image of MRO

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I published "The figure of activity of Encircling Dust storm on Mars 2018 1". After that, I chose Dust storm, which is related to the cold air from the SPC. What I reviewed was from June 8 to July 10. This is because Dust storm originating from this cold was concentrated in this period.

Because there are many areas where the MRO's public image is visible and where the image's joints are unclear, the map may have a position error. However, a number of dust storms originating from the SPC have been observed, and I think the big trend is certain. In this report, we introduce the fact that there is a bias in the period and place where it occurred, and that it behaves in the early stage.

### 1 Image of Dust storm originating from cold air from the SPC

Cold air flowing from the SPC has recorded a wedge-like dust storm from the SPC. The figure below shows the Martian surface during that activity. However, the entry of dust storms that do not originate from the SPC is omitted at this time.

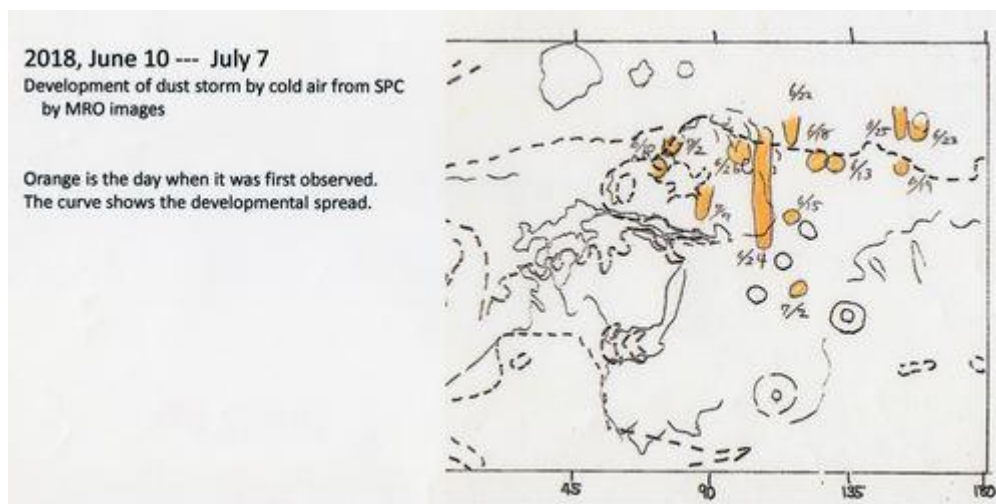


Figure 1 Map that I found cold air balloon from the SPC

It is an original drawing of the western half of the map released in "Aspect 1 of Encircling Dust storm activity on Mar 2018". What has a shape extending toward the north is the dust storm that seems to be the cold air from the SPC.

This time, we also trace how much each developed from the point of occurrence.

The tracking is visually plotted by relying on Olympus Mons, Marineris valley, and the like reflected in the image while rotating the published MRO image little by little. There is no software to measure the position, so the correct position has not been shown. The position seems to be quite off. However, I do not think that there is a big difference in the spread of the date and the dust storm.

## 2 Progress of Dust storm

Several northbound dust storms occur from June 8th to July 10th. The following four maps are created by determining an easily extractable segment from the public image.

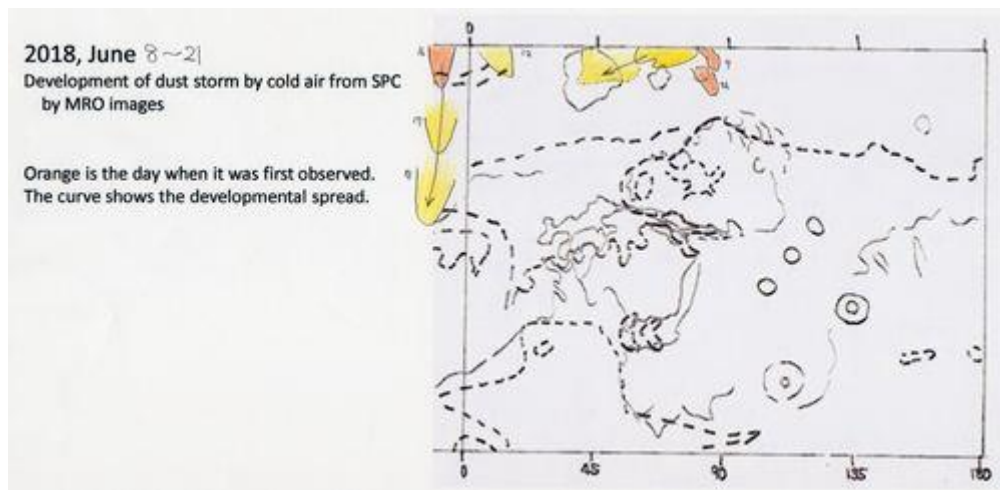


Figure 2 June 8 to June 21

There is a dust storm caused by the air flow around the polar cap around the SPC, but a dust storm heading north is seen at the left end. This is the first Dust storm coming north of the SPC this season. The outbreak date is June 16th.

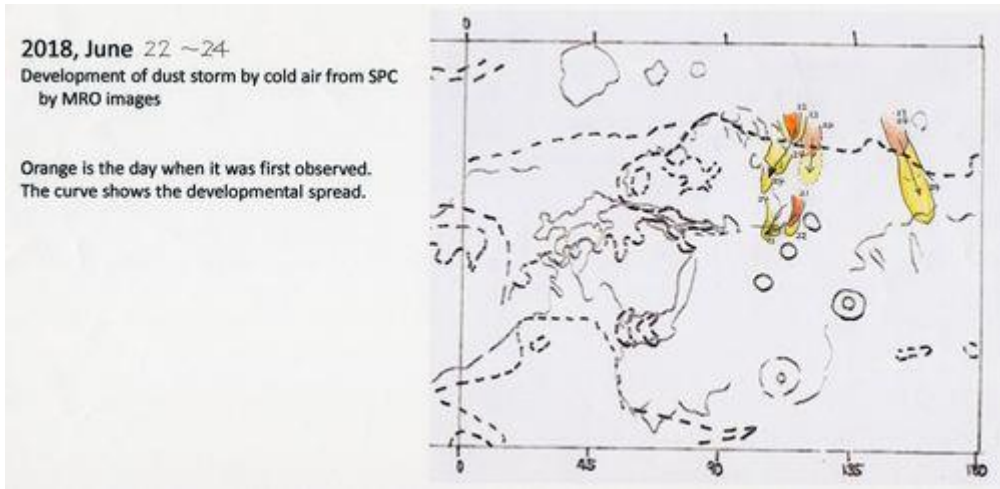


Figure 3 June 22nd-June 24th

Four dust storms occurred during only three days. It occurred just east of Arsia Mons on the 21st, and progressed slowly in the northeast direction. It spread for 3 days. It occurred on the south side of Daedaria on the 22nd and spread while advancing north-northeast. It is characterized by not moving very much immediately after the outbreak. Two streams were observed on the 23rd, and occurred south of Daedaria and east of Mare Sirenum. These too did not move much immediately after the outbreak, but then spread north rapidly.

Immediately after the outbreak, although the cause of not moving so much is unclear, it may be due to being blocked by the air flow around the SPC.

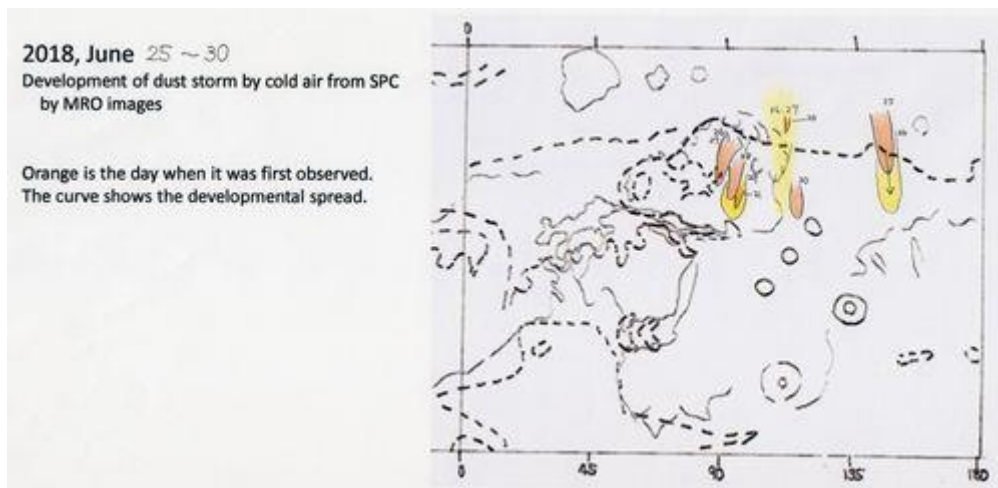
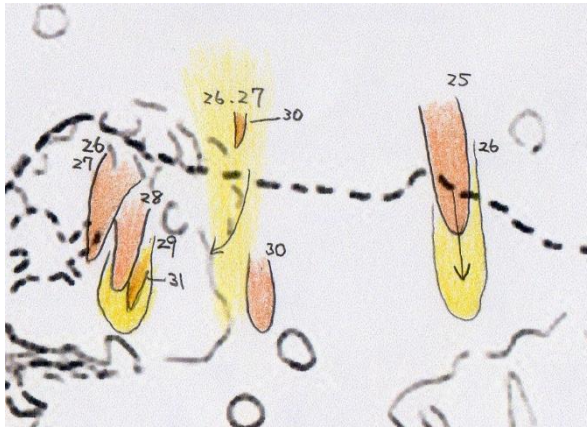


Figure 4-1 June 25th to 30th

It shows the situation from June 25 to 5 days. The focus of this period is the occurrence of three occurrences in Daedaria. It seems that there is a way out of the SPC. The central position seen three is also seen in Figure 3, which also appears to be a path. The most west occurred on the 25th. This was fast. It may have occurred between the 24th and 25th.

Figure 4-2



It is a magnified view of a part of the above figure, but at the beginning of the outbreak, it can be seen that all of them stay for two days. This is the same trend as Figure 3. It looks distinctive.

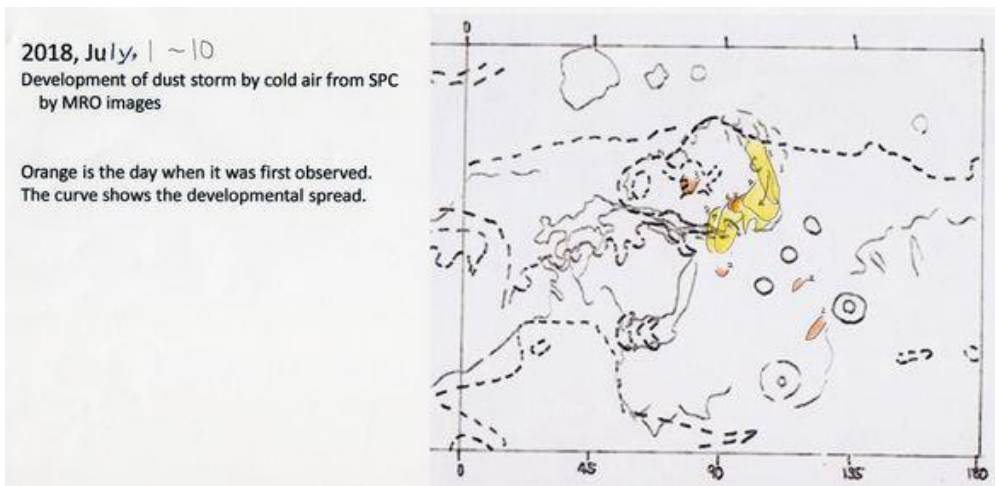


Figure 5 July 1 to July 10

The cold air from SPC has weakened. On July 3 I pass the most commonly used Daedaria. I did not know the detailed situation of the outbreak day well. Then, it developed again on July 6, and spread while being swept by the west wind. I did not know what happened at the beginning of the outbreak.

### 3 Summary

In this case, Encircling Duststorm shows a characteristic figure of Dust storm from the SPC, but some characteristics can be seen.

- (1) Movement at the beginning of the outbreak is dull
- (2) As described above, it may be affected by the air flow surrounding the SPC, or the altitude may change (rise) around the pole.
- (3) This dust storm is regional dust storm scale A number of them occurred one after another, but none progressed beyond the equator.
- (4) It is likely that the outbreak area will be a specific areaIt concentrated on the area of Mare Sirenum from Daedaria. The relationship with the terrain is not clear because the shape of the SPC is not clearly recognized, but when considering the cause of the phenomenon, the influence of the terrain is considered to be the largiest.

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