

The Moon occults Mars

By: Germán Morales Chávez

Last Saturday, September 5th, before midnight, we were able to record the occultation of Mars by the Moon. We were lucky that there were no clouds at the moment of the observation. However, after the spectacle ended, some cirrus started to appear in the sky, as well as other denser clouds, which, fortunately, were not present neither before nor after the occultation.

Members from our astronomy group observed and recorded this event in different ways. Some of them attempted to take some photographs of it.

We now present you some of those photographs, and at the end of this note, you will find the photographs and results from the author of it.

The following photographs were taken by Rosario Moyano, before and after the occultation through a Newtonian (Dobsonian) with a diameter of 20 cm and $f / 4.5$, applying the camera of the cell phone (Xiaomi Redmi Note 8) to the telescope eyepiece.



Fig. 1. The Moon and Mars last month, when from Bolivia, only a conjunction was possible to observe. The occultation was visible from the south of the American continent.





Igor Grájeda took these two photographs. The photo on the left was taken with 15x70 binoculars, with a Huawei P30 cell phone.

In both photographs, the eyepiece camera was attached to one of the eyepieces of the binoculars. The photograph below with the same binoculars (15x70), but with a Huawei mate 9 cell phone.



The observation made by Rosario Moyano and Germán Morales was executed from the backyard of their house, through a narrow sector to the north that, like a corridor, allows observing towards the east. From that point, it was possible to see Mars rise above houses roofs and buildings about 10 minutes before the occultation began, as G. Morales calculated and verified the previous day.

We have no more photos of the observers (the red telescope on the right was the one Rosario Moyano used).



Germán Morales (astrofis@gmail.com)
 Moon Occults Mars - Ingress - 2020-09-06 at 02:29:17 UTC
 Maksutov - D=90mm - F=1200mm - Nikon 5300 - frame 6000x4000
 Astronomía Sigma Octante (www.astronomia.org.bo) - Cochabamba - Bolivia



Germán Morales (astrofis@gmail.com)
 Moon Occults Mars - Ingress - 2020-09-06 at 02:29:38 UTC
 Maksutov - D=90mm - F=1200mm - Nikon 5300 - frame 6000x4000
 Astronomía Sigma Octante (www.astronomia.org.bo) - Cochabamba - Bolivia



Germán Morales (astrofis@gmail.com)
 Moon Occults Mars - Egress - 2020-09-06 at 03:41:57 UTC
 Maksutov - D=90mm - F=1200mm - Nikon 5300 - frame 6000x4000
 Astronomía Sigma Octante (www.astronomia.org.bo) - Cochabamba - Bolivia

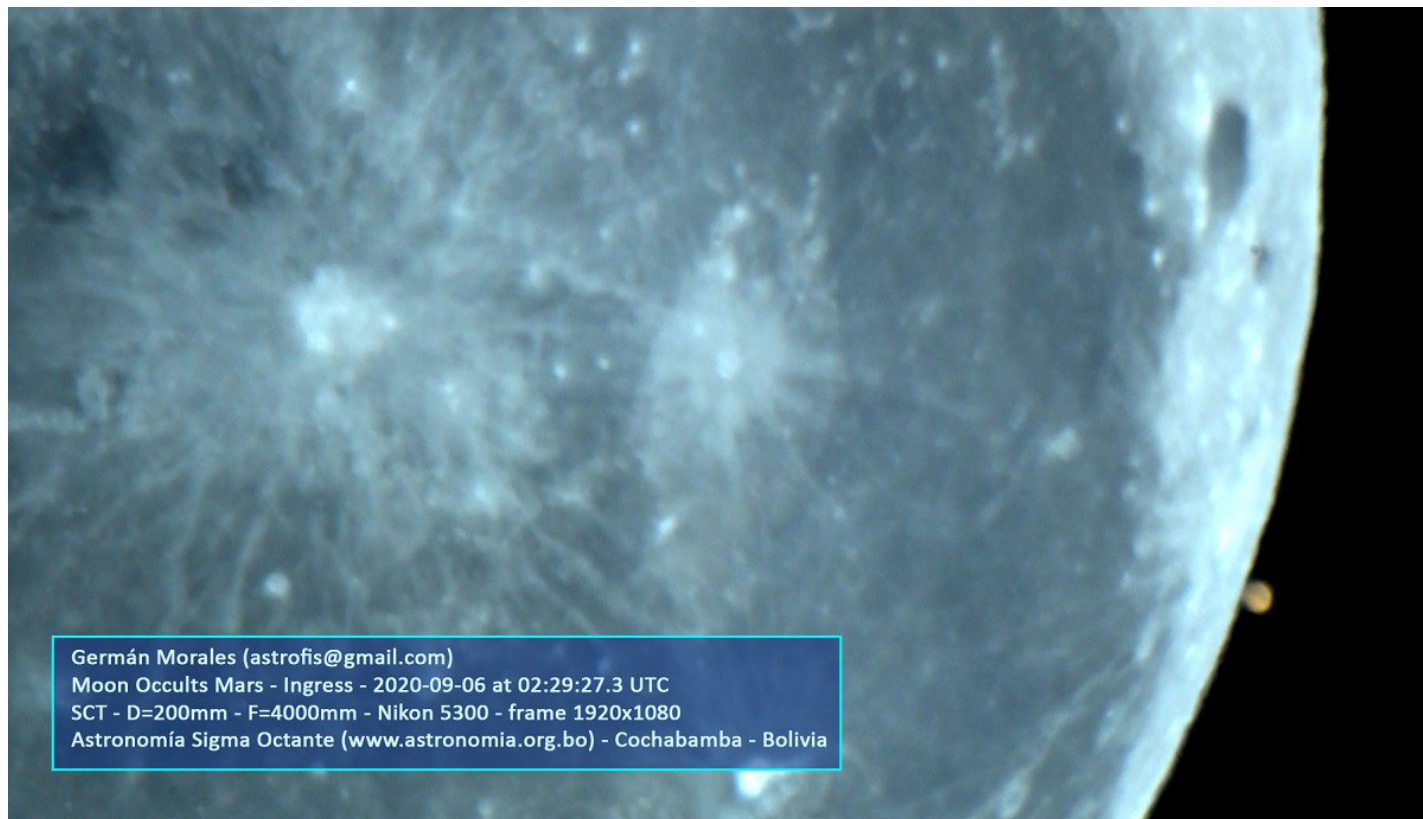


Germán Morales (astrofis@gmail.com)
 Moon Occults Mars - Egress - 2020-09-06 at 03:42:28 UTC
 Maksutov - D=90mm - F=1200mm - Nikon 5300 - frame 6000x4000
 Astronomía Sigma Octante (www.astronomia.org.bo) - Cochabamba - Bolivia

For the entrance and exit sequence, more than 100 photographs were taken, and some videos of the complete process of both moments were filmed, with an SCT telescope and a Maksutov. The data of hours and equipment are recorded in these photographs. The last photograph, in which the movement of the Moon can be appreciated, was obtained about 25 minutes after the occultation ended. In these photos, North is at the top and East is on the left. Photographs obtained by Germán Morales.



Germán Morales (astrofis@gmail.com)
 Moon Occults Mars - Egress - 2020-09-06 at 03:48:39 UTC
 Maksutov - D=90mm - F=1200mm - Nikon 5300 - frame 6000x4000
 Astronomía Sigma Octante (www.astronomia.org.bo) - Cochabamba - Bolivia



In the photos on the previous page, you can see two selected shots, one from the entry sequence (which occurred around on the lighted side of the Moon) and the other from the exit sequence (which exited from the edge of the Moon that already is at night). The full moon was on September 2 at 01:23 in Bolivia, at which time the entire visible hemisphere of the Moon was illuminated by the Sun), as commented in the previous article. You can see in the first shot, how Mars is at the moment when it begins to disappear behind the Moon, while in the other shot, Mars is half reappearing, thus identifying the lunar edge that is not possible to appreciate because it is not illuminated already for the Sun.

Observing this occultation even with binoculars or without instruments is a very motivating experience and one that carries with it a great aesthetic delight, beyond astronomical work. We hope that you have seen it. If not, stay tuned for other astronomical events of future interest, don't miss out on what's to come; in fact, at the end of this year we will have a very interesting conjunction between Jupiter and Saturn (something that we have been hinting at and anticipating for about two years now).

Article posted September 06, winter 2020

(Translated by: Micaela Morales)



Germán Morales / ASO, Cochabamba 2020/09/06



The author with the equipment he used to observe the occultation.

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