

Mission Summary – Final Commander Report

Ilaria Cinelli – Commander, Crew 172

Each generation of space exploration has had a focal point (reaching the Moon or building the ISS) and now it is Mars. Mars is not just the next goal. The Mars mission could be seen as a multilayer strategy which links the Moon, ISS and Mars exploration itself to resolve the major political, technical and economic problems a flight to Mars would engender [1].

Meeting the challenge for space exploration lies in expanding activities beyond the ISS. Nowadays, unlike the early stage of exploration programs, the international base of cooperation (the ISS) is the core for developing future scientific activities [1]. Exploration is an expansion of human experience in which international partnerships are needed to enhance the use of science and technology [1]. The landing of the first human on Mars would be seen as an international achievement, born on strong scientific bases. This is the reason for which Mars analogue missions are fundamental. In extreme isolated environments on Earth, scientists and engineers challenge their skills and life for testing new protocols and prototypes that one day, maybe, will be used in a real Mars mission.

Research studies have been carried out to investigate the impact of isolation on human behaviour, factors and performance in different analogue environments on Earth for 14-days to more than 500-days missions. Long term isolation simulation experiments are aimed at increasing of physiological and technical autonomy of the Crew from the remote Mission Control Centre [2]. During these missions, the marsonauts are training to make a full use of the available resources and independence of decision making. Isolation is created by limiting the amount of resources available (such as food and water) and stopping the supplies [2].

Thanks to monotony, loneliness, lack of social contacts, high responsibilities and stress, researches show the development of successful strategies, increased confidence in performance, ability to independently deal with complex problems, higher levels of inner emotional energy, resistance to stress, increased internal control, and social growth in the Crew [2]. Lack of sleep, communicative behaviour and phyco-emotional state of the Crew are just a few of the stress indicators [2].

During my mission, I have seen these stages in my Crew. Most the members were beginners of the analogue environment and they have made great progress throughout the mission breaking their comfort zone, overcoming stress, increasing control and performance. The first negative emotional state was shortly balanced with the successful of the execution of teamwork tasks (such as refilling static tank with water, EVAs, engineering troubleshooting, TV interviews, cooking a great meal and others) and positive feedback from the terrestrial community and media. My judgement and words had a strong impact setting a good base for the mission.

In contrast with the early stages of this mission, my Crew become more and more independent of continuous communication using wi-fi. As you know, here at MDRS the internet service is restricted, except for a few hours during the night (from 2 am to 5 am). The needs of continuous contact with outside is due to an inner need of

communication for a psychological support from trusted people (such as friends and family), compensating the emotional stress. At the end of the mission, their reports and communication with Mission Support are less personal, descriptive and with higher quality. Then, each of the Crew member better manage the use of the data needed for their personal communication. They have accepted the separation process and they now recognize this Crew as their own reference 24 H/7 in this mission. Although I have explicitly asked them to write about their personal view of this experience in reports and Sol summaries, most of them refuse because the mission itself is what they are. And that's the right answer!

They stepped in the extreme environment of MDRS with new rules and scheduled tasks both during night and day. We started fixing the porch of the Hab even before bringing our personal items in, on the very first day! After a few days, we had four days of a critical situation both because of the weather conditions and stopping the water resupplies. This last event consistently contributes to increase the stress in the Crew, while a new balance was growing. With so many limitations, panic and complaints create a vibrant mood in the Crew and increase the need of communication about their needs and frustration.

Creativity is essential for surviving in this conditions! Creativity is needed to resolve technical problems, interact with the Crew, keep a good mood and motivation to perform the work program. Creativity is part of the adaptation process, as tolerance and flexibility. International Crews are challenging to manage more than the national ones, because of the different cultures. But they did it and I am proud of their efforts!

Facing a critical situation enhanced the feeling of a unique entity of the Crew. Even though they were stressed, they understood that we were equally affected by the lack of water and this sharing helped to de-tress. People can suddenly change their priorities when we teach them the right method.

Eight total projects have been completed during this two-weeks mission. Science, engineering and educational outreach were only a few branches of investigation. Carrying on a project in a Mars analogue environment implies dealing with strong weather conditions, basic technology, limited resources, no resupplies, limited external support and a long list of unpredictable events that might completely affects the outcomes of the research process. Although each of the Crew members is an expert in their field, the interaction and support between members both in the Hab and in EVA is the difference with the terrestrial Labs. In my opinion, this challenge is the best part of the analogue mission!

As Commander, I consider this mission completed with successful outcomes. Seven strangers have now completed a great experience that I hope enriches their memories and soul. From Saturday on, we will go back to our terrestrial job... I do not like goodbye.

My Crew does not need me anymore. My work is completed now that their confidence in task is increased. I wish the best for them and I hope I helped them to reach their professional goals.

The Mars Society gave me the unique opportunity to be Commander, to training a fabulous international Crew, to manage the whole mission and to practice leadership at MDRS. I am glad I have invested so much energy and time such a wonderful experience! I thank The Mars Society, the volunteers and Mission Support for following and supporting my mission.

Commander Ilaria Cinelli is officially signing off.

“HabCom, it’s Commander. (...) Can you hear me? Mission is completed! (..) We are ready for landing!”

“Roger that, Commander!”

Ad Ares!

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