The response of the Italian National Antarctic Program to COVID-19 pandemic in the 2020-2021 expedition

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**Information Paper submitted by Italy**

Summary

COVID-19 pandemic represented a challenge in the implementation of the 36th Italian Antarctic expedition. Italy was one of the most touched countries by the first wave of COVID-19 infections. Although initially the planning of the expedition was done in a business as usual scheme, the uncertainties and the unknown evolution of the situation required the implementation of an emergency executive operation plan. Decisions were taken in close coordination with the other national Antarctic programs in the frame of COMNAP meetings, the main goal being to avoid COVID-19 entering in Antarctica. All precautions taken resulted in only one case of COVID detected during the quarantine in Christchurch (NZ) among one member of the crew of the Laura Bassi ice-breaker vessel. Italy wishes to thank Australia and New Zealand for the support offered at the gateways.

1. Introduction

The Italian National Antarctic Program (PNRA) operates in Antarctica the summer season only Mario Zucchelli Station (MZS) in Terra Nova Bay, Concordia Station in Dome C co-managed with the French Polar Institute (IPEV) and the Laura Bassi polar vessel. Besides transportation with the vessel, PNRA normally organises an air intercontinental link. In a normal season, aircrafts from AAD (A319) and the Italian Air Force (LC-130) are used and land at MZS on a runway prepared on the fast ice. This runway is operational from mid-October to the 20th November only. Continental air links are organized between Mario Zucchelli Station, Concordia, Dumont D’Urville (DDU) and Mc Murdo stations.

1. Organization of the 36th Italian Antarctic Expedition

Due to the pandemic evolution, an emergency operation plan has been prepared by ENEA (the Italian National Agency for New Technologies, Energy and Sustainable Economic Development in charge of the logistics of PNRA). Constant consultation was carried on with the neighbouring Antarctic programs.

The design of the 36th Italian Antarctic expedition followed the principles hereafter:

* Limits to international exchange of personnel and logistics.
* Reduction of expedition personnel to reduce the risk of introduction of COVID-19.
* Selection of only veteran and already trained personnel because of the cancellation of the usual training course, the only exception being winter over personnel.
* Accurate medical pre departure screening. Precautionary pre-departure isolation and COVID -19 test before departure from Italy.
* Quarantine at the gateways. Specific precautions such as use of face masks and disinfection means before departure for Antarctica.
* Specific protocols at the stations and on the vessel for new arrivals, specific COVID-19 protocols in case of suspicious case, specific additional cleaning of surfaces.

Interaction with participants of other National Antarctic Programs was limited with the exception of the French Antarctic Program. The Concordia system, MZS and DDU were considered as a unique “COVID-19 bubble” and logistic means for entering and evacuation of personnel were shared.

A dedicated charter flight was organized for the majority of personnel from Paris to Rome to Hobart where a governmental quarantine was organized. Personnel was tested for COVID-19 before departure from Europe. Advise for precautionary pre- departure isolation was also given to participants. Once at Hobart, personnel underwent a strict 14 d quarantine not being allowed to exit assigned room. Two more COVID-19 tests were performed on site. The strict quarantine was followed by prolonged isolation, social distancing and use of facemasks in the hotel until final departure for MZS with the A319 chartered from AAD.

Personnel of the group opening MZS and personnel on board the Laura Bassi transited through Christchurch and flew with commercial flights. Personnel was tested before departure and upon arrival in New Zealand, a 14 day strict quarantine was organized. Personnel was tested twice on site for COVID-19. At the end of the quarantine personnel was directly embarked on USAP flights or on the Laura Bassi. Once on board Laura Bassi, a prolonged separation from the crew was performed for other 3 d and an additional COVID-19 test was performed. Personnel was not allowed to disembark Laura Bassi 14 d prior its departure for Antarctica. During quarantine, one member of the Laura Bassi crew was found positive to COVID-19 test.

The overall personnel reduction was of around 70%. The activities conducted were focused on the maintenance of the stations and on long-term scientific experiments. No new project was allowed and the activity of already ongoing research was rescheduled and prioritized. Only unavoidable activities were performed. While logistic reduction was about 20% science suffered the biggest reduction in personnel and few scientists worked on several projects in perfect synergy in order to ensure maintenance and data collection.

Mario Zucchelli Station, Concordia and Laura Bassi were equipped with COVID-19 PCR test devices and specific personnel was trained for their use.

1. Specific sanitary protocol at Mario Zucchelli Station

In order to minimize the possibility of spreading COVID-19 infection in Antarctica, despite all precautions taken at the gateways before departure, additional measures were implemented at Mario Zucchelli Station following the arrival of new personnel for the next 5 days, to ensure an additional "window period" to detect the possible occurrence of suspicious symptoms.

The implemented measures have been:

* Separate accommodation of incoming personnel and shifts organized for meals and toilets
* Use of surgical masks inside the station and in common areas, social distancing in common areas and workplaces, use of hand sanitizer before and after the use of common areas in addition to normal frequent hand washing.
* Clinical observation: measurement of body temperature and request to report any suspicious symptom. In case of symptoms immediate isolation.

A specific medical protocol was in place in case a suspicious case was detected and a separate building was dedicated to isolation.

1. Conclusions

COVID-19 pandemic represented a challenge in the implementation of the 36th Italian Antarctic expedition; however, despite the heavy reduction of personnel, all planned operations were successfully completed.

All precautions taken for COVID-19 resulted in only one case detected among a member of the Laura Bassi crew during the quarantine in Christchurch (NZ). Italy wishes to thank Australia and New Zealand for the support offered at the gateways.