

SPACE OPERATIONS SYMPOSIUM (B6)  
Training Relevant for Operations (3)

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## ATV EMERGENCY TRAINING

**Abstract**

Emergency Training is a critical part of the ISS Crew Training since it is dedicated to preparing the crew to react to high risk on-board situations that might bring the crew in life threatening contexts. Three types of emergency cases are considered:

- Depressurization
- Fire
- Toxic spill

For each case a set of Emergency procedures is developed on ground with the strict collaboration of all entities involved in the ISS program. The crew training is mainly taught at the NASA Johnson Space Center (JSC) and at the Gagarin Cosmonaut Training Center (GCTC) in Star City, Moscow. The crew receives theoretical and practical training, exercising the acquired skills in mock-up simulations. These involve the Expedition Crews composed of 3 crew members that will fly together and 6 crew members that will be on-board together.

During their on-board mission the entire crew will be regularly exposed to Emergency Drills and On-Board simulations where scenarios, prepared by experts on ground, will be executed to evaluate the crew response and their capability to solve the situation in accordance with the named procedures.

At the ESA European Astronaut Centre (EAC) the crew receives specific training relevant to the Emergency procedures used in case the emergency situation is located in the Columbus module or in the Automated Transfer Vehicle (ATV).

This paper describes how the ATV Emergency training is conducted at EAC and highlight some particularities related to the ATV design and mission that have an impact on the emergency training. As ATV is a European module that is docked to the Russian side of the ISS, during an emergency situation ATV is treated as any other Russian module (like for example a Progress) and it follows the "Russian emergency philosophy". In contrast, the ATV design has been partially derived from other European modules like Columbus and the Permanent Multipurpose Module (PMM) that are docked to

the American side of ISS. As a result, the emergency instructors for ATV Training at EAC need to make sure that the crew understands the ATV particularities in an emergency case and will react accordingly to a potential emergency scenario on board.

The paper also presents the lessons learned from past training sessions and the crew comments to this training obtained until now.