Spatial Disorientation Simulator Installed at IAM, IAF, Bangalore

Spatial Disorientation (SD) is one of the leading causes of fatal aviation accidents all over the world in military and civil aviation. SD training can be imparted as didactics, physiological demonstrations, SD sorties in aircraft and by demonstrating illusions to aircrew in the safe environment of the SD Simulator. The IAF SD training was being imparted with the help of didactics and limited experience of illusions on the Human Centrifuge to aircrew when they were at IAM for a course. The IAF bid for a SD simulator to enhance its SD training capability. The same was procured and installed at IAM on 17 May 04.

The SD simulator installed at IAM is the AIRFOX-DISO procured from AMST Austria. It is state-of-art equipment. It has a six degrees-of-freedom motion base with an additional yaw axis. It is capable of comprehensive, re-configurable, real-time flight simulation of scenarios and flight parameters. This is combined with a realistic display and control system that gives the student pilot a realistic simulation of the flying environment and the illusions. The simulator has a possibility of simulation in three modes. First, in active mode the student pilot flies the simulator and the instructor guides a particular profile demonstrating the SD phenomenon. Secondly, in the passive mode, a preprogrammed profile of the SD computer is administered while the student passively rides the simulator. Thirdly, the active and passive modes can be flown from the instructor’s station. It can effectively demonstrate thirteen illusions and can also be used for motion sickness desensitization programmes. After the installation, faculty at IAM were trained in conducting the profiles and the technical staff in the maintenance aspects. SDI AF is involved with the software maintenance.

The simulator has been envisaged to be used for imparting SD training to aircrew. The same has been started with dovetailing the SD training in the Advanced Fighter Aeromedical indoctrination Course (AFAIC). A similar effort would be done for the Transport and Helicopter Indoctrination Course (THIC). Training of Medical Officers on the aspects of SD on the AIRFOX DISO shall help them understand the complex subject and enable them to interact meaningfully with the aircrew in the squadrons.