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OPERATION OF AIRCRAFT

SAFETY

**WARNING ON WEATHER PHENOMENA IN THE VICINITY OF
CONCENTRATED SOLAR POWER PLANTS (CSP)**

The SACAA has been made aware of potential hazards, in the form of Clear Air Turbulence (CAT) developing over and in the vicinity of Concentrated Solar Plants, in particular above the tower in which the generation activity occurs.

The phenomenon known as Thermal Plume Turbulence is a result of the dry cooling of air via a condensing system, which may or may not employ fans below air cooled condensers extracting the hot air from the generation process, causing the air to rise above the CSP towers.

According to research conducted by the (FAA sponsored) Airport Cooperative Research Program the rising air may reach speeds of approximately 15 KM per hour just above the tower vents, dissipating to approximately 7 KM per hour at roughly 1000 FT above the CSP tower.

The same phenomena could also be expected to occur above the stacks associated with conventional power plants such as the Eskom Kusile facility, which also employs a dry cooling process. The wet cooling of air at generating facilities could be expected to produce vapour, which may be easily identified by pilots.

Further to this information, the operators of a CSP facility in the Upington Area have advised that during the focusing of the reflective mirrors which illuminate the CSP tower, the activity could produce an estimated 1000MW/m² flux in the atmosphere above the structure. While the area of flux is considered to be small, aircraft operating into the area would be exposed to the phenomenon, the effects of which at this stage are not known.

Pilots are therefore advised to avoid the airspace above CSP Tower structures.



DIRECTOR OF CIVIL AVIATION