My home-made mirror fan system. Gordon Lloyd, 05/01/11

Ever since I had a telescope (55 years ago!) I knew about the problems of Newtonian and other open-tube reflecting telescopes. The three problems are caused if the ambient air is cooling down faster than the telescope primary mirror. Warmth from the mirror can cause warm tube currents up the tube. Also, a warm boundary layer can form just above the primary mirror. Both these make refractive index gradients in the optical path and result in "Bad Seeing". So I decided to fit a computer fan to blow air across the top of the mirror and out of the telescope tube.

The top photo shows my home-made fan box. It's made of very thin aluminium sheet, bent, glued and pop-riveted together.

Its flanges in one direction match the curve of the telescope tube. These flanges carry Velcro strips which attach to matching Velcro on the tube.

The outside opening has a plastic grid attached to prevent large bits of debris from going into the single, large hole cut in the telescope tube. This is itself covered by an identical grid.

The top of the box has a small socket for power.

The fan is set to blow air across the top surface of the primary mirror, when it exits via 3 large holes. In the middle photo, a thin, blue line visible across the centre hole is actually the bevelled edge of the primary mirror

The middle photo shows the opposite side of the telescope tube with its 3 holes, grids and velcro.

The bottom photo shows a view inside the fan box. The fan is extremely quiet and apparently vibration-free in use. It is mounted in the box entirely resting and located in position using foam material. The box's Velcro pieces are also shown in this photo.

The fan is powered from the same 12v, 12AH lead-acid wheelchair battery I use for the telescope drive. I can plug it in or unplug it as required.

When not in use, the fan box is removed and pieces of soft leather are attached instead, using Velcro.

A similar piece of leather is fitted across the exit holes shown in the middle photo.