

My name is Peter Verwayen and I am here to represent the Research School of Astronomy and Astrophysics at the Australian National University. I am RSAA's Resident Operations Manager at Siding Spring Observatory, and as such, I am responsible for the operational management of the Australian National University's telescopes at Siding Spring, including the 2.3 metre telescope, Australia's second largest optical telescope, and the SkyMapper telescope, Australia's newest and most technologically advanced telescope.

Siding Spring Observatory attracts interest from organisations around the world as an ideal location in Australia for continuing astronomical research. Currently there are a number of external organisations that have astronomical instruments in place at Siding Spring. These include the University of New South Wales, the Polish Academy of Sciences, the Max Planck Institute for Astronomy in Hungary, and the Harvard Smithsonian Centre for Astrophysics in the United States.

These organisations alone have invested in excess of 16 million dollars on equipment and infrastructure to house their facilities at Siding Spring. Much of this investment is injected directly into the local community through the purchase of goods and services for construction and maintenance of their facilities.

Organisations about to begin construction on the site include the University of North Carolina with their PROMPT telescope and the Korean Astronomy and Space Science Institute are investing heavily to build the Korean Microlensing Telescope.

These projects have a life span of about 5 years, so it's important that we continuously market the benefits of Siding Spring internationally to ensure not only the future of the site, but also the ongoing economic benefits that flow to the local community. Negotiations are currently underway with a number of other organisations to attract them to Siding Spring to ensure the future security of the site as a productive scientific research facility for the astronomical community as a whole.

The site that Siding Spring occupies was chosen due to its spectacularly dark and clear skies, free from the light pollution that plagues larger towns and cities, yet close enough to major centres to be practical. Light pollution increases the brightness and decreases the contrast of the sky, making it harder or impossible to detect faint objects. One of the major sources of light pollution up to now has been from the growth of the nearby town of Coonabarabran. This has been controlled through consultation with the local community and council to ensure that lighting standards are maintained.

The threat to Siding Spring now comes from mining activities in and around the Warrumbungle shire, and the threat is somewhat more substantial. With mines operating 24 hours a day, the requirement for work lights is not disputed. However, with careful planning and the use of full cut-off lighting, this can be managed in a way to prevent unnecessary upward scattering of light and as a bonus, increase the efficiency of the lighting.

Mining activities produce the additional threat of airborne dust. The contamination of instruments is of lesser concern and will need to be monitored. But it is the effect that the dust has on increasing the amount of light that is scattered from the mine itself is of great concern. Airborne dust is also catastrophic to light at the blue end of the visible spectrum, scattering it widely. This is why the Sun is often deep red at sunset on a hazy day. This effect will greatly reduce the ability of researchers to carry out meaningful work at Siding Spring. It is expected that dust minimisation procedures will be

adopted at the Cobbora mine, but dust levels will require monitoring both at the mine site and at Siding Spring.

The unfortunate consequence of NOT mitigating or controlling these threats will be that Siding Spring Observatory will no longer be able to attract or maintain a productive scientific research effort. The Australian National University will by necessity, withdraw from the site, impacting the local community, and the international organisations that rely on Siding Spring to continue their scientific research. We therefore feel that it's necessary that we work together with Cobbora Coal to resolve these issues to keep Siding Spring Observatory as a productive scientific research facility.