

Moving into the Light: The AEOS Telescope in the Daytime Operating Environment

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Abstract for "Coming into the Light: The AEOS Telescope in the Daytime Operating Environment" Interest in daylight operation for the AEOS 3.67-m Telescope first surfaced during the preparation of the AEOS specification documentation in 1991. The author and Lt Rich Elder prepared, edited and combined requirements inputs from AFRL technical staff to create the final RFP document. In this released specification, AEOS daylight performance was limited to best effort, although provisions for adding secondary mirror sky light baffling were to be provided. In 1993, during the AEOS construction phase, AFRL requested that the author prepare a report on special considerations for operating AEOS in the solar illuminated daytime environment. This report was published and briefed to AFRL and Space Command at that time. Interest in this topic at AMOS was rekindled in 2007 by Dr Joe Janni and Lt Col Scott Hunt. The author updated his 1993 report and in June 2007 presented "AEOS 1993 Daylight Operation Study Revisited" at AMOS. Subsequently, Dr Stacie Williams spearheaded additional work in this critical technical area. Recent efforts at Tau Technologies LLC have focused on external AEOS telescope baffling and shielding options assessment, solar irradiation effects on optical components, especially the primary mirror, and on modeling the solar illumination on the entire telescope during daylight operation. Solid Works and Illustrator simulation models have been developed and exercised.