

Survey of Astronomical Facilities Using Outdoor Lasers and Associated Aircraft Safety Systems

June 6, 2008

W. M. Keck Observatory is interested in gathering information from the astronomical community on the use of lasers in navigable airspace. We will use this information to try to better represent the community as a whole when working with the SAE G-10T and the FAA.

The SAE G-10T subcommittee on laser safety hazards has been asked by the FAA several times in the past to assist them developing standards related to protecting aircraft from hazards related to the use of lasers in navigable airspace. We are working with the G-10T to better understand the criteria used to evaluate proposed safety systems for laser operations. They have agreed to help and two more meetings in 2008 are planned to work on defining these criteria. We expect that these criteria will apply to systems comprised of human aircraft spotters and/or automated systems. WMKO personnel will be participating in these meetings.

Since our team is already engaged with the G-10T and FAA, we propose to try to represent not just ourselves, but the astronomy community wherever appropriate. Toward that end, we would like to collect information from other institutions on their laser operations and plans for aircraft safety. Specifically, we would like to know what technologies are currently in use or are planned for future use in providing aircraft safety. We would like to know what's unique about the operations at the different observatories, and what the characteristics of the operating environments are.

We would also like to collaborate with others in the astronomical community on issues related to improving the performance and reducing the cost of systems which protect aircraft and their occupants from being impacted by our laser operations.

We invite you to participate in the following survey.

(See reverse side or go on-line to <http://www2.keck.hawaii.edu/library/spie2008.html>)

Feel free to add whatever information you feel might be pertinent, and please don't be constrained by the minimal amount of space provided on the form. Use additional sheets if desired.

Please return surveys to :

Paul Stomski (PStomski@keck.hawaii.edu)
W. M. Keck Observatory
65-1120 Mamalahoa Highway
Kamuela, Hawaii USA 96743

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1. Name and address of observatory or facility
2. Point of contact for more information (Name, e-mail, phone number, etc.)
3. Oversight Authority (FAA in the USA, DGA in Chile, "Transport Canada" in Canada, etc.)
4. Description of Laser (Type, power, beam diameter, beam divergence)
<p>5. Description of Operation</p> <ul style="list-style-type: none"> • Environment (Weather, elevation, proximity to airports, etc.) • (Already In-use) or (still in-development)? • Frequency of use? [(hours per night) and (nights per year)] • Type of application (LGS AO, ranging, comms, other?) • Description of air traffic (density and patterns) • How often do you have to shutter the laser for aircraft? • Is there anything unique or special about your operation?
<p>6. Description of aircraft safety strategy or approach.</p> <ul style="list-style-type: none"> • Procedural restrictions? • Aircraft spotters? (Yes or No) • Remote display of 3rd party radar / air traffic data feed? • Radar? (Boresight or fixed direction) • Camera(s)? <ul style="list-style-type: none"> ○ Wavelength? ○ Boresight or fixed direction? ○ Field of View (radius in degrees) • Other technology?
7. What do you hope to gain from collaboration?
8. What can you offer the collaboration?