

From: Andy Boden & Dan McKenna

To: Palomar Observers

Subject: Palomar Ash Situation

Date: 3 Dec 2009

Dear Palomar Observers,

As most of you are aware, the past few months have seen an unprecedented amount of observing time on Palomar telescopes lost due to airborne dust and ash. Many of you who have been to Palomar during this period have seen these effects first-hand. Obviously we deeply regret the negative impact this situation has had on many Palomar science programs. We are writing here to apprise you of the ongoing situation and the relevant plans going forward.

It remains our belief that the biggest single culprit for the Palomar environment ash is the material produced here in LA County by the enormous Station Fire, and transported down to the Palomar area by winds in September and October (with subsequent recirculation from Palomar-local deposition). Our ash problems at Palomar began soon after the start of the Station Fire (in early September), and mountain staff report that the worst conditions seem to be correlated with winds from the NW. Washing the P200 dome in mid-October indicated that the Palomar area was inundated with ash (see Image 1). Even though there have been local fires in N San Diego County this fall, the exceptional Station Fire stands out as this fire season's defining event in Southern California.

Once the pattern of high airborne particulate load was established, the observatory consulted with a number of long-time Palomar observers (e.g. Wal Sargent, Keith Matthews), who directly observed the situation, and concurred that what we are experiencing is both real and unprecedented in their Palomar experience. These ambient ash effects have lingered until now; unlike LA County which saw a significant rain event in October, Palomar had seen no significant rainfall between the spring and this past weekend (i.e. 29 Nov). Now that we have entered a winter weather pattern at the observatory we are hopeful that recent and future rain events will quickly suppress the ash load in the Palomar environment.

During these difficult circumstances Palomar Observatory has taken a number of important steps to better understand and monitor our airborne particulate environment, and review our operational policies. First, we have installed both dome-interior (30 Oct) and exterior (30 Sept) particulate counters. These particulate counters provide a direct, objective measurement of airborne particulate loads both in the P200 dome and outside. While we continue to rely on the judgment of our Telescope Operators in conducting the classic "flashlight" test to open the dome, we have found that data from the particular counters correlates well with the Operator's judgment, and serves as an important environmental monitor while the TO is in the control room. Second, we have conducted tests of ash accumulation on coated glass slides, and clearly confirmed that the airborne material and moisture is

indeed destructive to the aluminum mirror coating (See Image 2). Based on the results of these two investigations (and in consultation with the above-mentioned experienced Palomar observers), in order to protect our Palomar assets we do not believe that any changes to our P200 and P60 operational procedures is appropriate at this time.

However, because the P48 telescope primary is protected by the Schmidt corrector optic, one operational change we are making is relaxing the open criteria for the P48. K. Matthews, D. McKenna, and J. Zolkower are presently drafting and reviewing these new opening policies; we expect to implement these P48 policy changes within a week or so.

Many of us have have been disappointed to lose Palomar observing time this season. While we at the Observatory deeply regret this science impact, we remain hopeful that winter weather will provide safe and productive operating conditions for Palomar telescopes in the near future. Thank you for your support in these difficult times.

- Andy Boden  
Dan McKenna



Image 1: P200 dome washing on 15 October 2009. In an attempt to suppress airborne particulates we washed the P200 dome (with the assistance of PMVFD). The amount of ash material on the P200 dome suggests that the entire Palomar area is inundated with ash from the Station Fire.

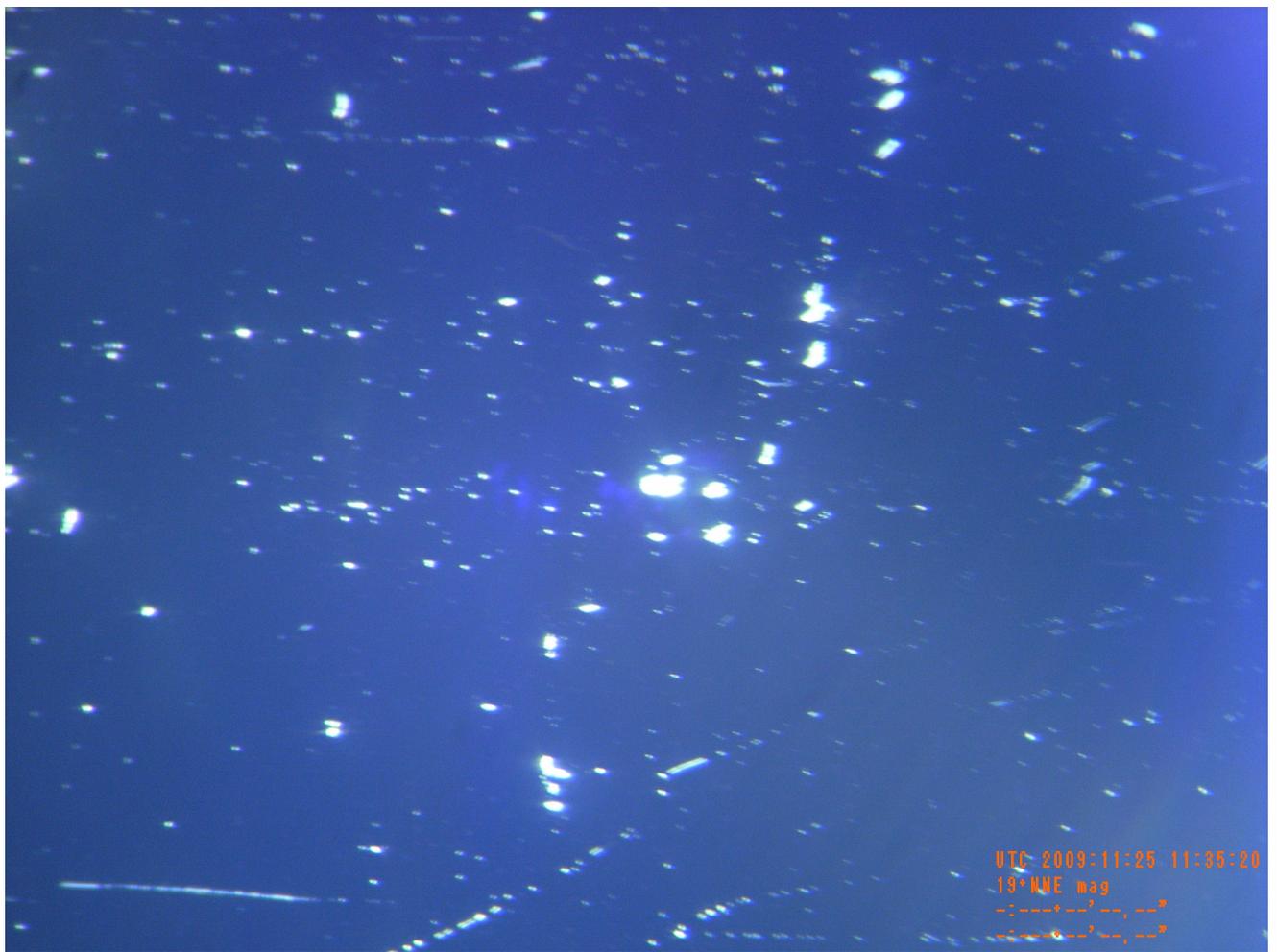
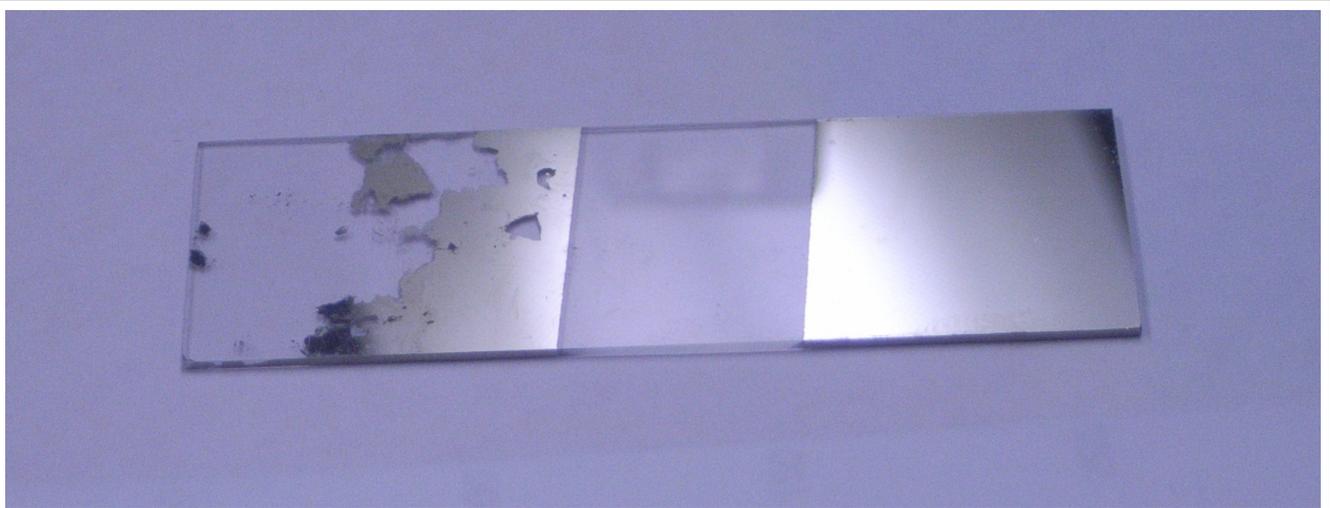


Image 2: Aluminum Coating Exposed to Ash. Top: Left section shows aluminum coating destroyed by 2 hr exposure to moist (80% RH) wood ash. Bottom: Closeup of microscope slide exposed to dry ash (25% RH) for 14 hrs.