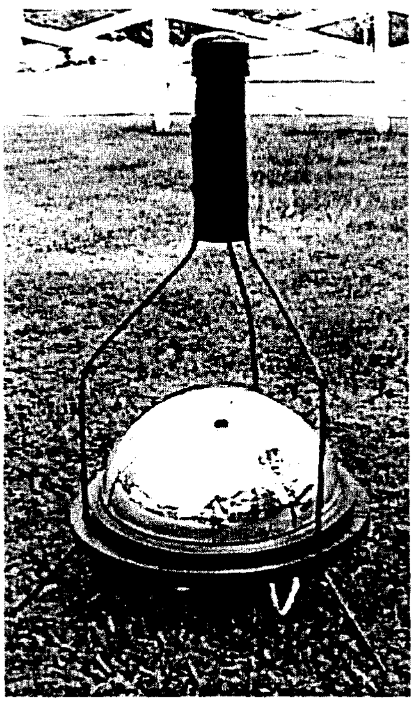
A LOW COST ALL-SKY FIREBALL PATROL CAMERA. E. F. Albin, Department of Space Sciences, Fernbank Science Center, Atlanta, GA 30307, USA (ed.albin@fernbank.edu).

Introduction. It is amazing how many fireballs and bolides have escaped capture on video, even in our modern techno-gadget age. With this in mind, a low cost all-sky meteor camera was assembled to record the local sky on clear evenings.

All-Sky Camera. Our camera configuration is similar to those sponsored by the Sandia National Laboratory in Albuquerque, NM (USA). A robust camera sensitive enough to capture first magnitude and brighter fireballs was assembled at surprisingly little cost. The camera, model PC-164C, was acquired from Supercuits, a large video security outlet (1-800-335-9777) for $129.95 (USD). It is a black and white CCD camera with super low light capability – 0.0003 lux. The camera operates on a 12 volt DC power supply connected by 15.0-m of cable, which includes both video and power lines intertwined. A 4.0-mm C/CS lens (also from Supercuits), model CML-4MM, was added to the system for a cost of $24.95 (USD). The camera is mounted in a simple weatherproof PVC tube housing and is pointed vertically down at an acrylic 30-cm full dome mirror. Such a spherical convex mirror produces a fish-eye image of the entire sky. This mirror, model AV12F, was purchased for $48.00 (USD) from the Lester Brossard Company (1-800-766-1066) and sits on a wooden disk that is attached to the camera mount with three 0.5-cm aluminum rods.

Recording Routine. Video imagery of the sky is recorded continuously on a super long play eight-hour VHS tape. It is preferable to interface the camera with two video recorders, with the second unit timed to record after the first is complete, thus enabling an uninterrupted 16-hour patrol of the sky. In order to simplify day to day operation, tapes are only checked if there has been a report of a bright meteor. Otherwise, after one week, tapes are recycled or recorded over. In practice, the camera works very well. Condensation on the mirror is often a problem on cool nights; however, a simple electric heating pad tucked within the dome mirror works well to prevent moisture accumulation.

Conclusions. It is suggested that a regional network of these simple fireball patrol cameras could make an important contribution to the recovery of new meteorite falls and the determination of the orbital parameters of the associated meteoroids.



EXCESSES OF ^{36}S IN SULFIDE-BEARING CA-AL-RICH INCLUSIONS FROM ALLENDE. J. Aléon[1], K.D. McKeegan[1], I.D. Hutcheon[2] and G.J. Wasserburg[3], [1]UCLA, Dept Earth & Space Sciences, [2]Lawrence Livermore National Laboratory, [3]California Institute of Technology. aleon@ess.ucla.edu

Introduction: Having four stable isotopes, S is a potential tracer of processes such as mass independent chemistry [1, 2], irradiation [3] and/or the presence of nucleosynthetic anomalies [e.g. 1] in the early solar system. To study these processes, S isotope compositions were measured in 6 refractory metal-rich assemblages (Fremdlinge) from 3 Ca-Al-rich inclusions (CAIs) and in 5 massive sulfides in chondrules and matrix of the Allende CV3 chondrite, using high precision multiple-collector secondary ion mass spectrometry.

Analytical procedure: Measurements were made using the UCLA IMS 1270 ion microprobe in multi-collection mode; ^{32}S, ^{33}S and ^{34}S, were collected simultaneously on Faraday cups, whereas ^{36}S was analyzed on an electron multiplier by peak-hopping. The terrestrial mass fractionation (MF) line was established using Canyon Diablo troilite (CDT) and terrestrial pyrite and pyrrhotite standards. Results are reported here as $\Delta^{33}S$ and $\Delta^{36}S$ deviations from the terrestrial MF line; external reproducibility (2s) is 0.12‰ and 1.46‰ for $\Delta^{33}S$ and $\Delta^{36}S$, respectively. The 6 Fremdlinge are S-rich, consisting predominantly of pentlandite (Pn) + pyrrhotite (Po) + NiFe-metal (Mt) with minor phosphate and MoS_2 [4, 5].

Results: $d^{34}S_{CDT}$ values range from –0.4‰ to –5.8‰, but due to primary beam overlap between Pn, Po and Mt, matrix effects on the instrumental MF need more investigation [6]. No significant (>0.2‰) $\Delta^{33}S$ variation occurs in any sample (Fig. 1a). In contrast, Fremdlinge in Allende 5171 and Egg2 show significant ^{36}S excesses of ~4.5±1.5‰ (Fig. 1b). No resolvable ^{36}S excess was found in Egg6-4 or in the chondrule or matrix sulfides. The differences in $\Delta^{36}S$ suggest the low-temperature sulfidation of Allende Fremdlinge was distinct from that of chondrules and matrix [7].

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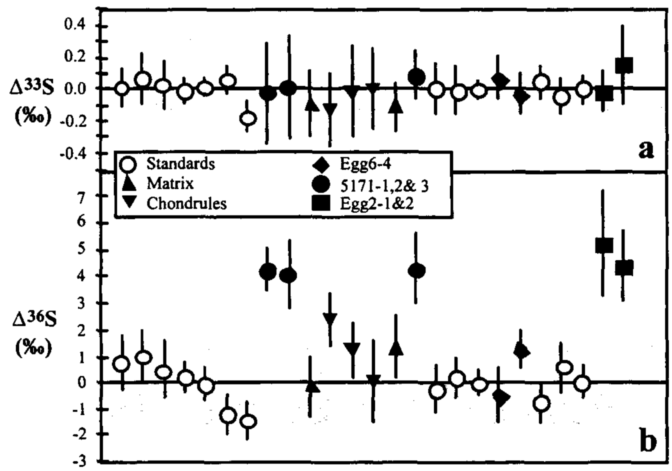

Fig. 1. $\Delta^{33}S$ and $\Delta^{36}S$ versus analysis sequence. Error bars are 2σ. Shaded areas show 2 standard deviations on the standards.