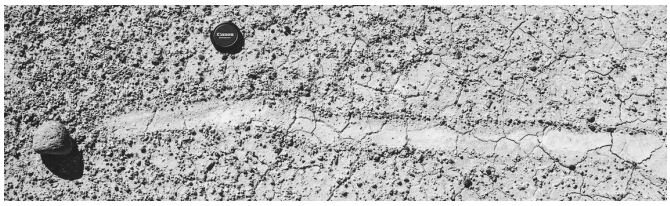
IMPLICATIONS OF ICE RAFTING FOR METEORITE RECOVERY ON SEASONALLY WET PLAYAS. N. Gessler[1], P. Gessler[2], R. D. Matson[3] and R. S. Verish[4]. [1]Box 706, Topanga, CA 90290-0706; [2]2138 Central, Victoria, B.C., Canada V8S 2R3; [3]S.A.I.C., 3030 Old Ranch Pkwy, Ste. 210, Seal Beach, CA 90740; [4]Meteorite Recovery Foundation, P.O. Box 237, Sunland, CA 91040.

Introduction: Racetrack Playa, in California's Death Valley National Park, is famous for its mysterious sliding rocks [1]. For decades researchers have been divided on the issue of their locomotive mechanism. The authors have collected a wealth of photographic evidence of this phenomenon at many other desert locations and their analysis of these empirical data strongly favors the ice rafting theory. By 1998 it became clear that rock ice rafting applied equally to meteorites, thus suggesting a natural concentration mechanism akin to the glacial concentration of meteorites in Antarctica. Exploitation of this knowledge, by combining historical meteorological data with detailed field observations, has subsequently led to the recovery of several dozen meteorites from five playa locations.

Discussion: The authors have studied furrows left by sliding rocks, sticks and other objects, as well as shoreline alteration from plowing ice sheets, on playas in California, Nevada, Arizona and Oregon. In most cases track directions coincide with local prevailing winter storm wind directions. To date, these grooves have been observed only on lakes that seasonally experience freezing temperatures. No evidence suggests that tracks are produced during rainy summer months. Ice appears to be a sufficient and necessary factor in explaining rock transport on playas.



Correlating track vectors with shoreline contours indicates the likely meteorite stranding zones for each playa. Search efforts focused near and along favored playa shorelines have led to the successful recovery of multiple, unpaired meteorites at each of five locations: Cuddeback Dry Lake (CA), Bluewing (NV), Superior Valley (CA), Red Dry Lake (AZ) and Tungsten Mtn. (NV) [2]. These successes are testimony to the soundness of the theory.

Conclusions and Implications: Older meteorites of smaller sizes are unlikely to be found in the middle of playas experiencing seasonal ice. If a meteorite is found in the middle of such a playa, far from the favored stranding zone, then it is likely to be a comparatively fresh fall or too large to have been effected.

Furthermore, the distribution of meteorite finds is unlikely to match the original strewn fields. Their elliptical shapes are rapidly distorted and ultimately destroyed by differential movement. Two sites already show evidence of this.

Finally, the proximity of meteorite finds on these playas, especially in zones of concentration, is not a reliable cue to pairing. Indeed the transported recovery zones for several falls could quite easily become intermingled.

References: [1] Messina P. and Stoffer P. (2001) *California Geology*, Vol. 54 No. 1, 4-15. [2] Russell, S. et al. (ed.), (2002) Meteoritical Bulletin, No. 86, Table 3, *Meteoritics & Planetary Science* 37.