

Friday, March 27, 2009
ACHONDRITES AND THEIR PARENT BODIES
1:30 p.m. Waterway Ballroom 5

Chairs: Gretchen Benedix
Edward Scott

- 1:30 p.m. Kita N. T. * Goodrich C. A. Spicuzza M. J. Valley J. W.
[*Oxygen Isotopes in Ungrouped Achondrite NWA 1500 and Comparison to Brachinites*](#) [#1393]
 NWA 1500 ungrouped achondrite may be related to brachinite based on new oxygen isotope analyses using both SIMS and laser fluorination methods. We compare NWA 1500 with brachinites and ureilites and discuss their parent body processes.
- 1:45 p.m. Shirai N. * Humayun M. Righter K.
[*Analysis of Moderately Siderophile Elements in Angrites: Implications for Core Formation of the Angrite Parent Body*](#) [#2122]
 We determined moderately siderophile element abundances in angrites. Based on the analytical data, we discuss the core formation of the angrite parent body.
- 2:00 p.m. Benedix G. K. * McCoy T. J. Spratt J.
[*Thermodynamic Constraints on the Formation History of Lodranites*](#) [#1494]
 We discuss closure temperatures and oxidation state of lodranites and compare to acapulcoites, winonaites and IAB irons. The effect of melting on oxidation state is elucidated by the presence of two different populations of chromite.
- 2:15 p.m. Gardner-Vandy K. G. * McCoy T. J. Laurretta D. S.
[*Formation Conditions of FeO-rich Primitive Achondrites*](#) [#2520]
 We present a study of the fO_2 conditions under which the FeO-rich primitive achondrites (the brachinites and several ungrouped primitive achondrites) formed, and we relate these conditions to those of other primitive achondrite groups.
- 2:30 p.m. Huang S. * Humayun M. Downes H. Singletary S. Van Orman J. A. Jacobsen S. B.
[*Petrogenesis of Augite-bearing Ureilites: A LA-ICP-MS Approach*](#) [#1330]
 Major, minor and trace elements have been determined on silicate minerals from ureilites LAR 04315, North Haig and FRO 93008 using LA-ICP-MS. The element compositions in ureilite minerals are consistent with ureilites being melting/smelting restites from a spinel peridotite.
- 2:45 p.m. Ash R. D. Goodrich C. A. * McDonough W. F. Van Orman J. A.
[*Metal in Ureilites: Siderophile Elements from LA-ICP-MS*](#) [#1422]
 Ureilites are hard to understand. Why did God make so many ureilites? We address this question with LA-ICP-MS analyses of siderophile elements in metal, oxidized metal and silicates in ureilites.
- 3:00 p.m. Van Orman J. A. * Goodrich C. A. Wilson L.
[*Metal and Siderophile Elements in Ureilites: Reconciliation with Smelting?*](#) [#1986]
 Ureilite bulk siderophile patterns can be reasonably modeled by batch or fractional melting in the Fe-S system, within a narrow range of starting compositions. Lack of fractionation in the Fe-C system does not contradict a smelting model.
- 3:15 p.m. Scott E. R. D. * Bogard D. D. Bottke W. F. Taylor G. J. Greenwood R. C. Franchi I. A. Keil K. Moskovitz N. A. Nesvorny D.
[*Impact Histories of Vesta and Vestoids Inferred from Howardites, Eucrites, and Diogenites*](#) [#2295]
 Impact histories of Vesta, vestoids and other V-type asteroids are investigated using constraints from oxygen isotopic compositions and Ar-Ar ages of HEDs and ungrouped eucrites, and dynamical and astronomical studies of main belt asteroids.

- 3:30 p.m. Warren P. H. * Huber H. Choe W.
[*Siderophile and Other Geochemical Mixing Relationships Among HED-Meteoritic Breccias: Need for Recognition of Regolithic Howardite as a Distinct Subtype*](#) [#2471]
We report new (mainly INAA) data on the major- and trace-element bulk compositions of ~100 HEDs; these, along with noble-gas and petrographic data, show that that only a small and distinctive subset of the howardites are truly regolithic breccias.
- 3:45 p.m. Day J. M. D. * Walker R. J. Rumble D. III Irving A. J.
[*Peridotites from Another Planet? Osmium Isotope and Highly Siderophile Element Constraints on the Evolution of Diogenites and the HED Parent Body*](#) [#1992]
Highly siderophile element systematics of diogenites point to chondritic relative proportions of these elements in the HED parent body, providing new insight into planetary accretion processes.
- 4:00 p.m. Yamaguchi A. * Takeda H. Barrat J. A.
[*Petrology of Ferroan Diogenites, Yamato 75032 Type, Asuka 881839, and Dhofar 700*](#) [#1547]
Y-75032 type, A 881839, Dho 700 are among the most ferroan diogenites, slightly more magnesian than cumulate eucrites. Minor element compositions in pyroxenes and chromite compositions indicate that Y-75032 type and the ferroan diogenites formed from different parental melts.
- 4:15 p.m. Isa J. * Yamaguchi A. Shinotsuka K. Ebihara M.
[*Northwest Africa 1109 and Camel Donga: Metal-bearing Brecciated Eucrites*](#) [#1919]
Two eucrites NWA1109 and Camel Donga contain significant amounts of Fe-metals. In order to better understand the origin of the Fe-metals, we performed a petrological and geochemical study of these meteorites.
- 4:30 p.m. Mittlefehldt D. W. * Beck A. W. Lee C.-T. A. McSween H. Y. Jr.
[*Chemistry of Diogenites and Evolution of Their Parent Asteroid*](#) [#1038]
Trace element compositions have been determined for a suite of diogenites. The results are discussed in the context of HED parent asteroid differentiations.