

INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS OF TYPE 3 ORDINARY CHONDRITES

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We have started a program to study the type 3 meteorites by complementary physical and chemical techniques. Here we report some preliminary INAA data on samples which have previously been studied by thermoluminescence. We analyzed six type 3 chondrites from Allan Hills (three of which may be paired), Yamato Y74191, Mezö Madaras and Quinyambie. BCR-1 and Allende standard rocks and three equilibrated Chinese chondrites were also included and they show good agreement with literature values. For all but Quinyambie, for which only one 40 mg sample was available, two 150 mg fragments were analyzed in separate irradiations.

The data are shown in Figure 1. In the recent past, some carbonaceous chondrites have been misclassified as ordinary chondrites. Our lithophile element data clearly indicates that all of the present samples are ordinary chondrites. Elements more refractory than Cr have lower abundance ratios than the carbonaceous classes, while Cr and the more volatile elements are more abundant than in carbonaceous classes. Chalcophile Zn has similar abundances in both carbonaceous and ordinary chondrite, while Se has higher abundance in our samples than in the carbonaceous classes. All elements are in the ordinary chondrite range.

Our siderophile element data suggest that, contrary to Wlotzka and others (Wlotzka, 1981, and references therein), it is meaningful to divide type 3 ordinary chondrites into the H and L classes. With the exception of Au, there is a hiatus in the siderophile element content of our samples which separates H from L chondrite. Our data also suggest that type 3 chondrites contain lower siderophiles than equilibrated members of the same class, a point discussed at length by Dodd (Dodd, 1976; Jarosewich and Dodd, 1981). Investigating a possible relationship between siderophile elements and metamorphism will be an important aspect of future studies.

Dodd, R.T., 1976. *Earth Planet. Sci. Lett.* **28**, 479-484.

Jarosewich, E. and R.T. Dodd, 1981. *Meteoritics* **16**, 83-91.

Wlotzka, F., 1981. *Meteoritics* **16**, 403-404.

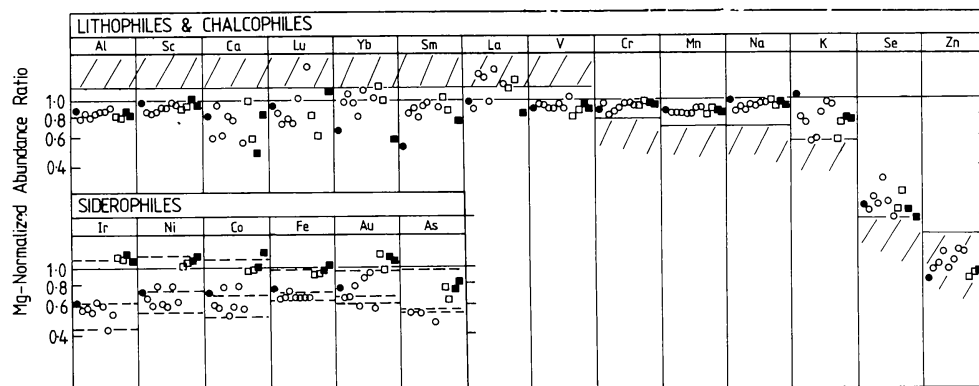


Fig. 1 Abundance data for (left to right) Junan, Allan Hills A77015, A77167, A77214, A77278, Mezö Madaras, Quinyambie, Yamato Y74191, Allan Hills A77299, A78084, Jilin and Xingxang (underlined may be paired). Circles — L chondrites, squares — H chondrites. Filled symbols — equilibrated, open symbols — type 3. Cross hatching — abundance range for carbonaceous classes. Horizontal broken lines — H (upper), L and LL (lower) group means.