COMPOSITION OF THE LATE INFLUX OF THE EARTH.
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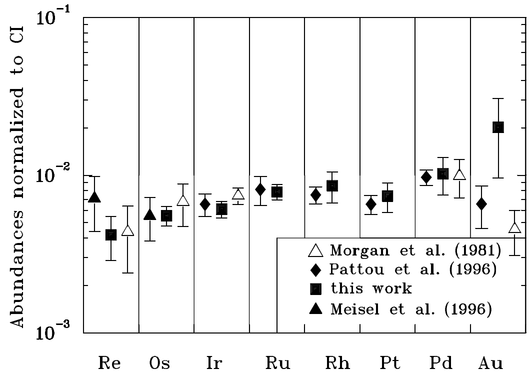
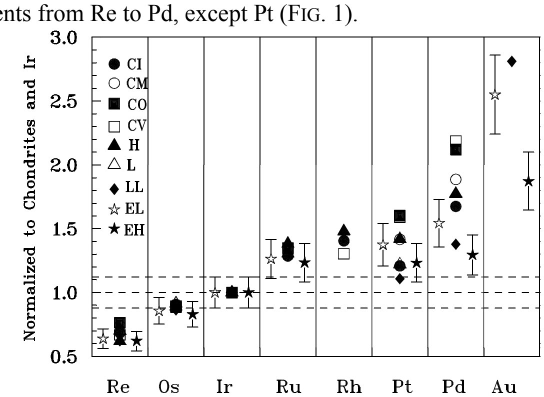
Introduction: Many authors explain the relative “high” abundances of HSE and their broadly chondritic proportions in the Earth’s mantle (PUM) by the addition of a late chondritic veneer after core formation. Many recent studies have documented significant regional variations in absolute HSE abundances and inter-element ratios in mantle samples. Such variations may have been caused by complex geochemical processes such as partial melting, melt percolation and aqueous metasomatism in the subcontinental lithosphere [1]. For a better characterisation of the late veneer component(s) of the Earth I review here selected neutron activation data from our own studies for orogenic spinel lherzolites [2,3] that have suffered only slight melt depletion (Ca/Si>0.086) and compare this data with selected data from the literature [4-6].

Results: Abundances of HSE in PUM sampled by lherzolites from our studies [2,3] are as follows; 0.16±0.05 ng/g Re; 2.69±0.38 ng/g Os, 2.80±0.34 ng/g Ir, 5.60±0.61 ng/g Ru, 1.20±0.27 ng/g Rh, 7.33±1.55 ng/g Pt, 5.68±1.52 ng/g Pd and 3.06±1.60 ng/g Au [7].



In a large number of „fertile“ samples [2-6] the abundance distribution of the HSE is remarkably uniform with slightly increasing abundances with decreasing refractory character of the elements from Re to Pd, except Pt (FIG. 1).



In FIG. 2 mantle HSE abundances (this work) are plotted normalized to Ir and chondrites. The HSE systematics show that the late veneer closely resembles E-chondrites or LL-chondrites [7,8].

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