Figure 1

- **b)**
- **c)**
- **d)**
- **e)**

- Average shale
- Individual shale analyses
- Peraluminous UHP metasediments
- Residues, melts of red clay

**“normal” UHP terrains, 750 to 820°C**
- Pamirs xenoliths, ~1050°C
- Erzgebirge & Kokchetav, ~1100°C

**Estimated temperature, °C**

**Concentration/MORB**
Figure 2
\( \Delta \rho = \rho_{\text{UHP}} - \rho_{\text{Talk, Harz}} \) (kg/m\(^3\))

**Figure 3**
Figure 4

The figure depicts the relationship between sediment layer thickness (m) and temperature (°C) as influenced by instability time (log10 yr). The temperature range is from 400 to 1000 °C. The sediment layer thickness is varied from 200 to 1400 m.

The figure is divided into two panels:

**Panel a)**
- **Sediment Layer Thickness (m)** along the y-axis.
- **Temperature (°C)** along the x-axis.
- The color gradient indicates the likelihood of diapirs formation, with blue indicating diapirs unlikely and red indicating diapirs likely.
- Contours represent instability times of 100 Myr, 1 Myr, and 1000 yr.
- The region marked as “Diapirs Likely” is highlighted.

**Panel b)**
- **Time (Myr)** along the y-axis.
- **Temperature (°C)** along the x-axis.
- The graph compares the stability of Izu–Bonin (Cold) and Cascadia (Hot) regions.
- The graph shows the effects of pressure (0.1 GPa and 1 GPa) on diapir formation over time.
- The y-axis represents the time scale (Myr).
- The x-axis represents the temperature range from 0 to 1200 °C.
- The graph highlights the time and temperature at which diapirs are likely to form.

The figure illustrates the complex interplay between sedimentary layers, temperature, and pressure in determining the likelihood of diapir formation in different tectonic settings.
Subducted Sediment Thickness (m)

Diapir Initiation Temperature (°C)

Δρ = −200 kg/m³

\( \ddot{\varepsilon} = 1 \times 10^{-16} \text{ s}^{-1} \)

Subarc Slab Depth (km)

Diapir Initiation Depth (km)

Figure 5