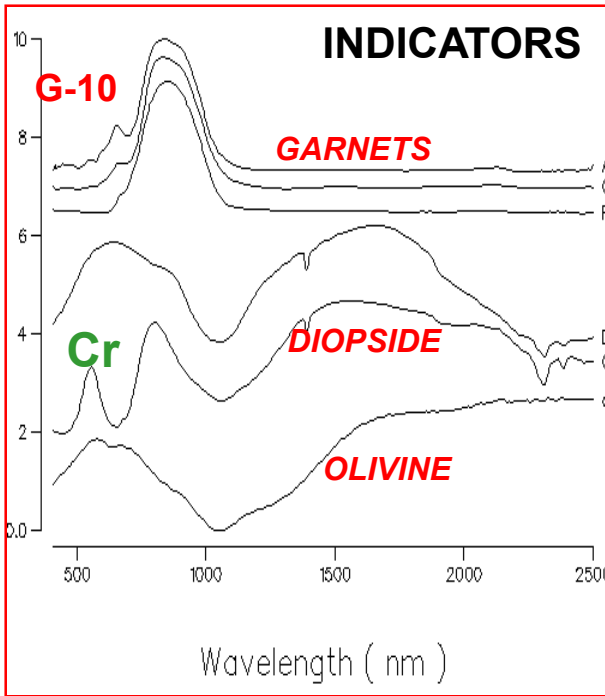
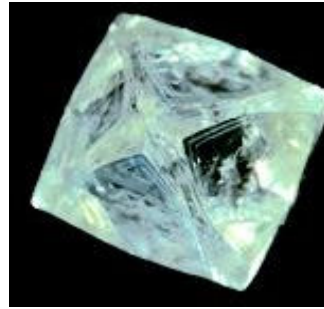


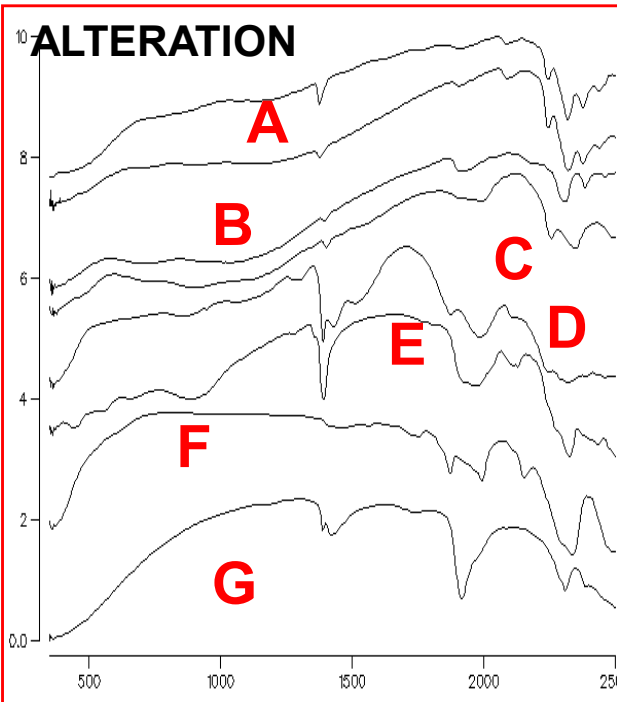
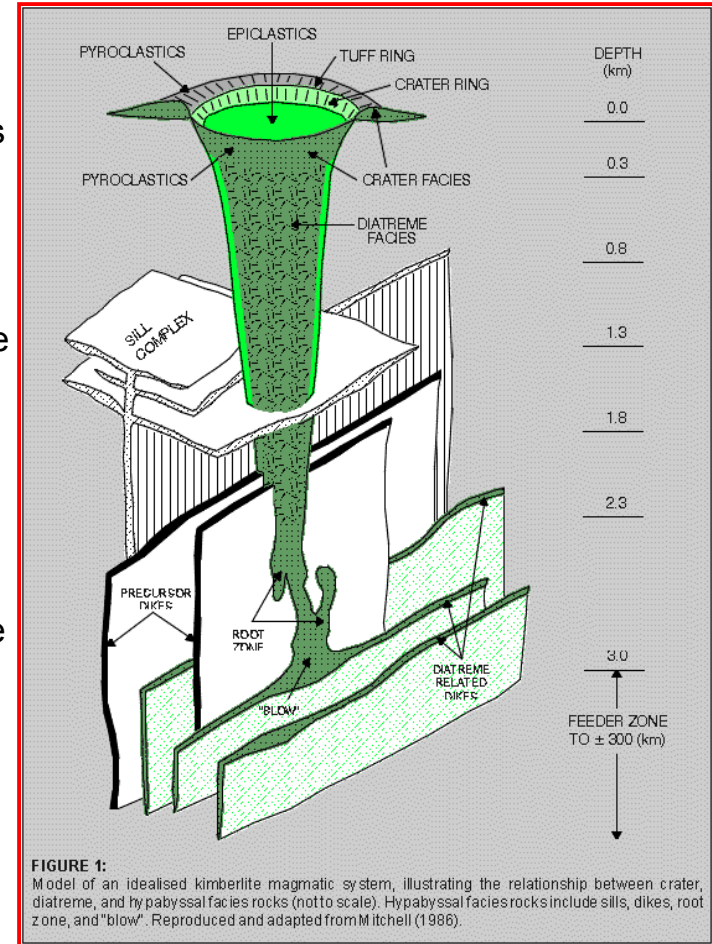
SPECTROSCOPY of KIMBERLITES



Kimberlites are volatile (CO₂)-rich, potassic ultrabasic rocks with variable composition megacrysts in a fine grained groundmass. They occur as clusters of pipes within fields within provinces, probably along major crustal fracture zones. As Kimberlites are emplaced (some explosively) from the mantle, they pass through diamond zones and in so doing entrain diamonds. Diatreme development involves extreme brecciation. There is explosive decompression with subsequent alteration from downward percolating fluids. At the surface, kimberlite weathers to a soft, oxidized rock, “yellow ground”, which grades into “blue ground”, towards the source or into the pipe. Olivine weathers to serpentine, which weathers to saponite and smectite, oxidizing iron in the process to produce the yellow coloration.

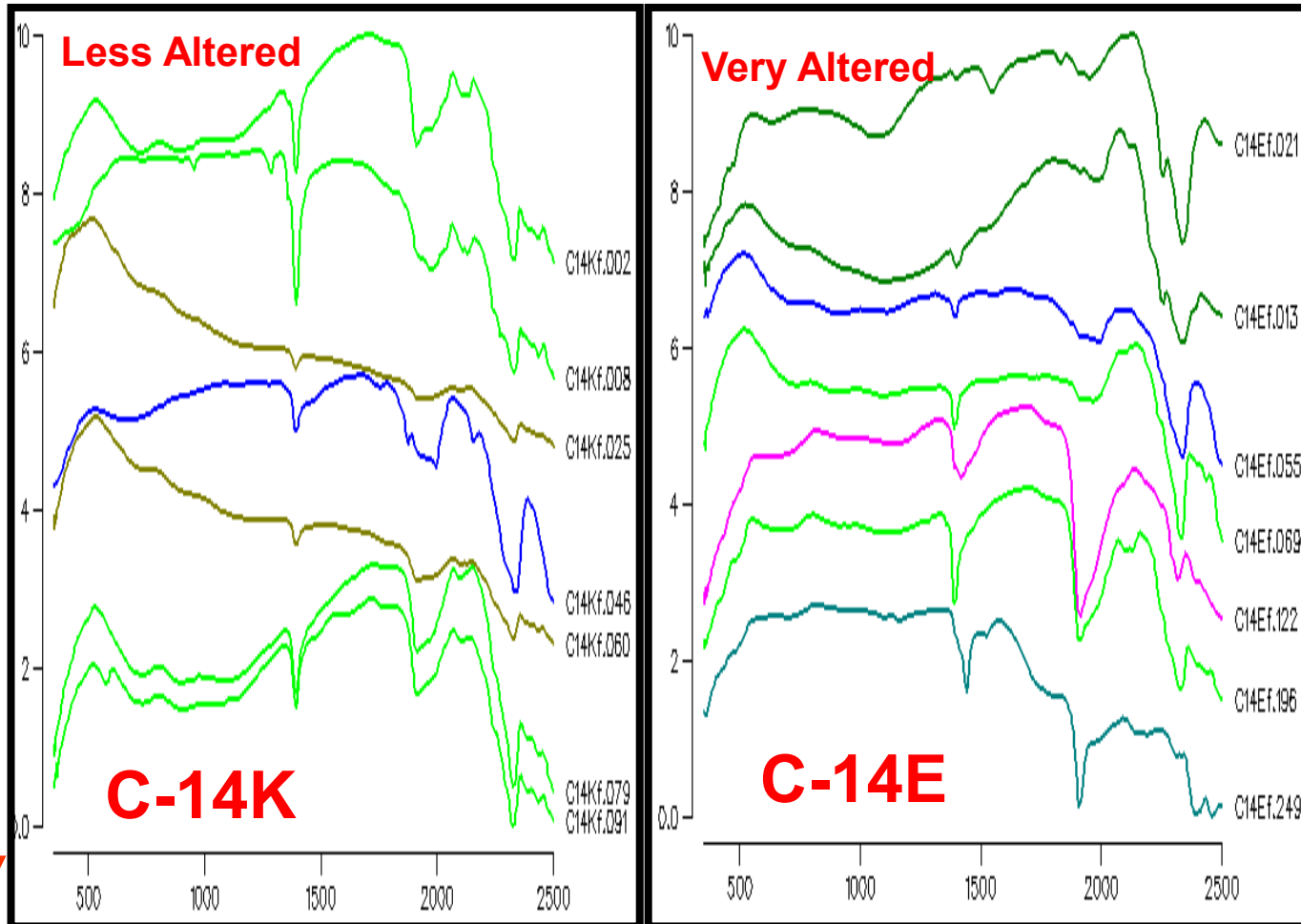
Spectroscopy prospects for kimberlites by defining the diagnostic alteration haloes and indicator minerals.

Common ALTERATION MINERALS detected by spectroscopy include biotite/phlogopite [A], Fe-amphibole [B], Fe, Mg chlorite [C,D], serpentine [E], calcite [F], saponite [G], nontronite: INDICATOR MINERALS include : garnets, diopside and olivine..



CORE LOGGING

Spectral Analysis Kimberlite Core



D **Serpentine - Matrix Calcite** **Epidote, Chlorite, Calcite**
Serpentine, Saponite, Apophyllite

The specTERRA™ provides the most rapid analytical analysis possible of the alteration and indicator minerals in the kimberlite cores.

Spectral International, Inc.

P.O. Box 1027, Arvada CO, 80001 USA

ph 303 403 8383 Fax 303 403 8385

pusa@rmi.net

www.spectral-international.com

