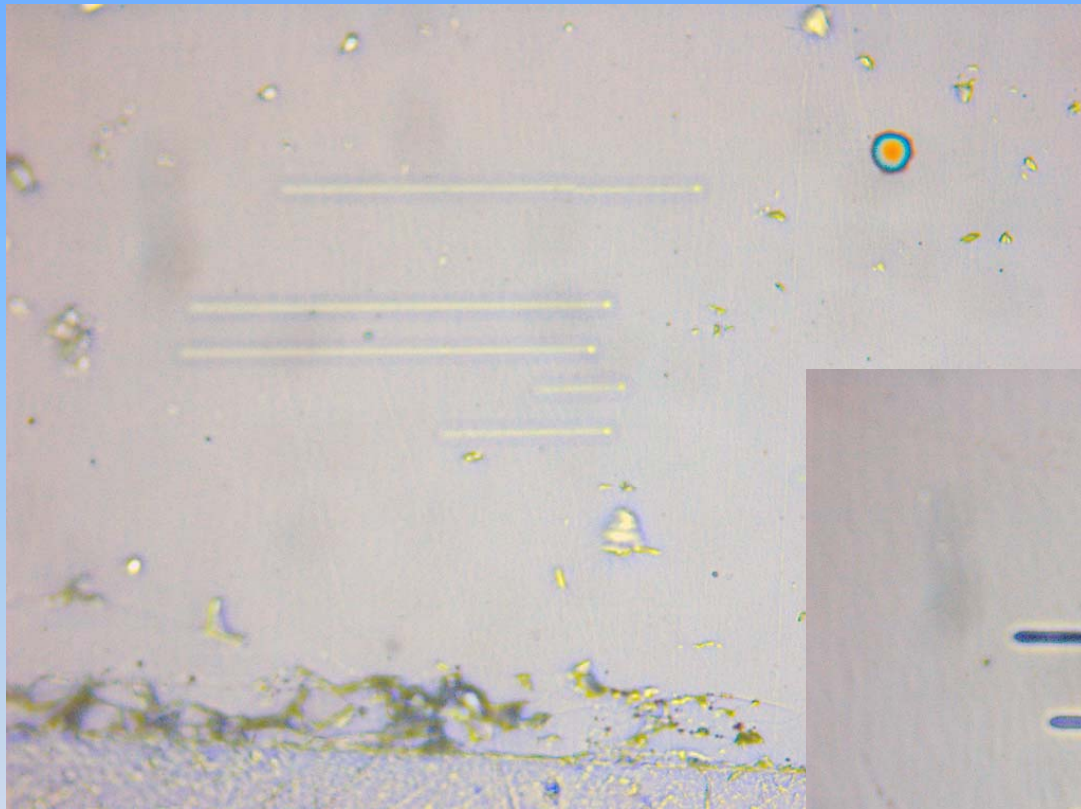
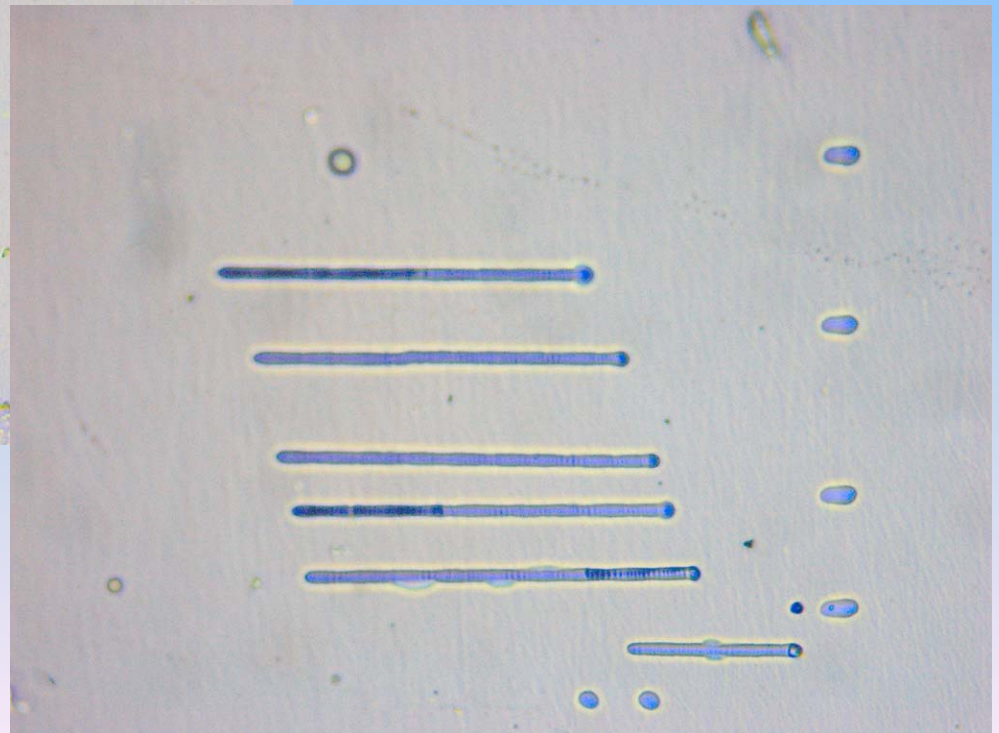


Sample Damage?

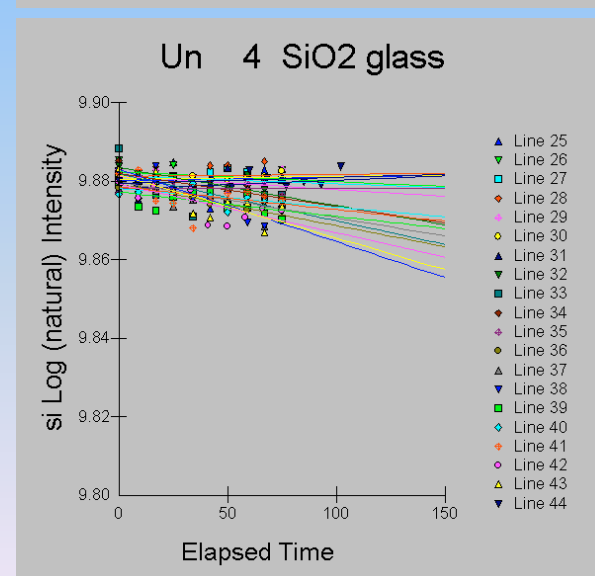
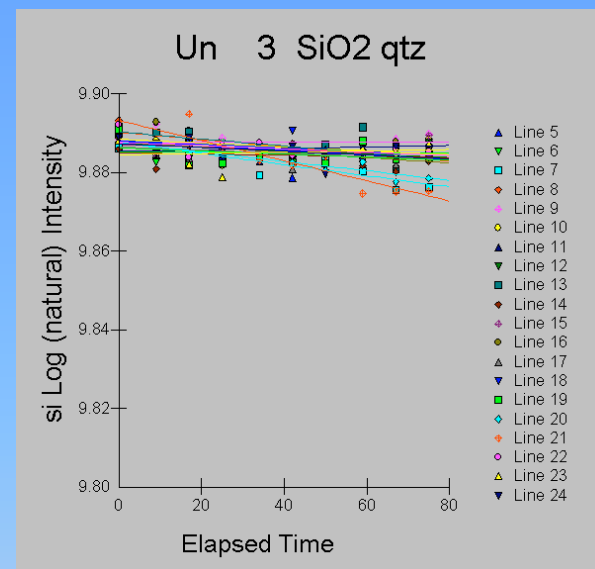
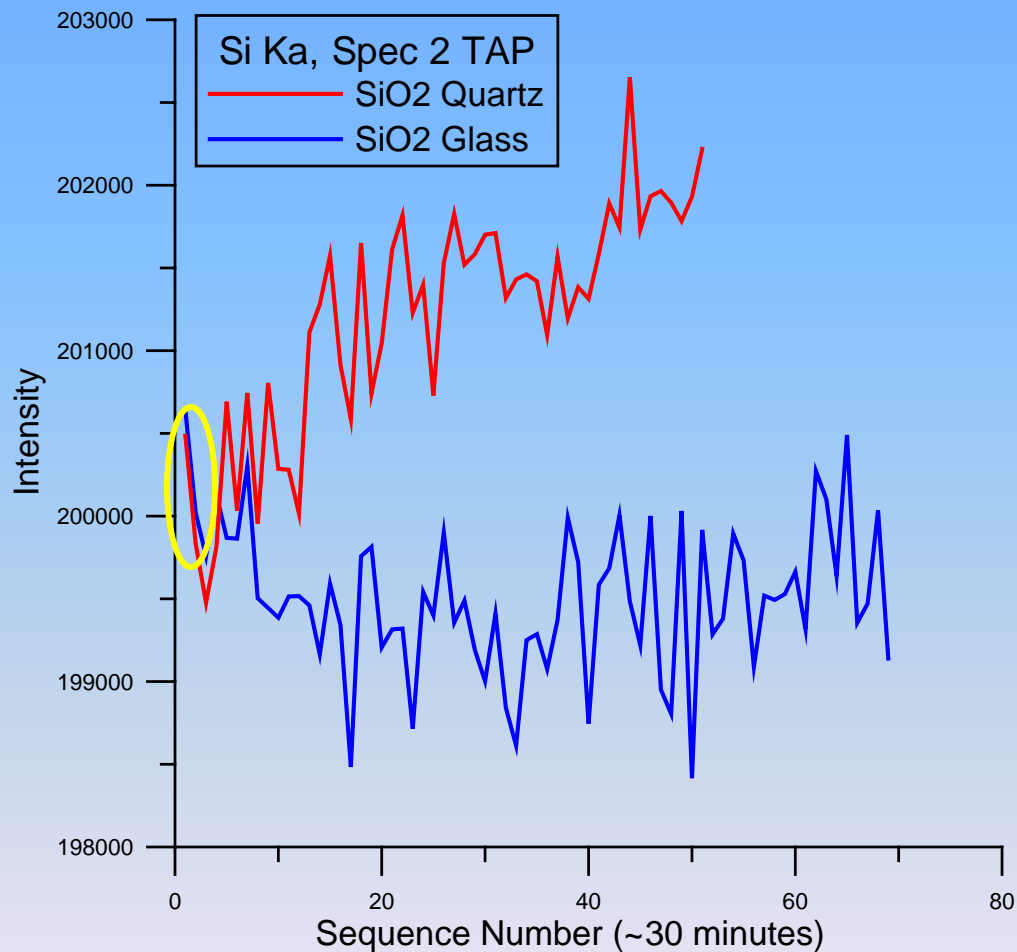


SiO2 Glass



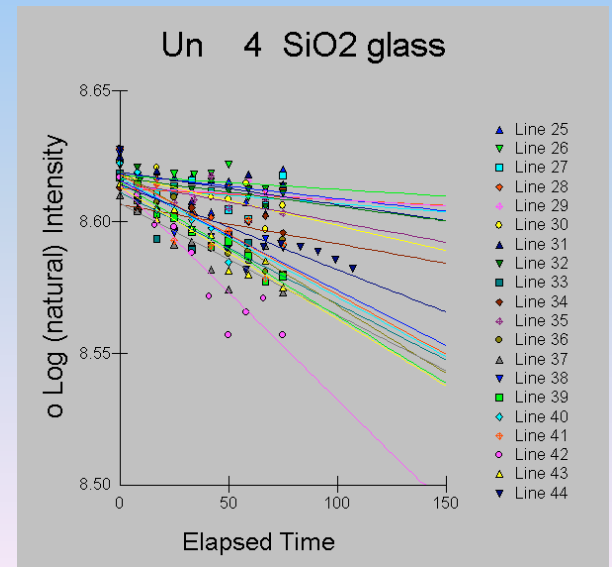
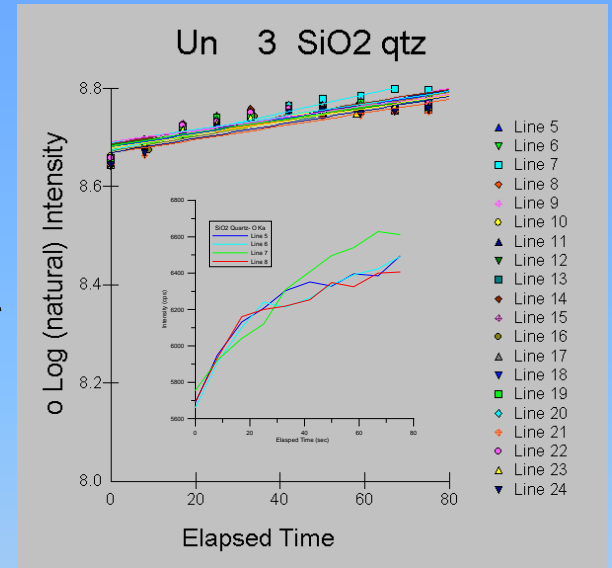
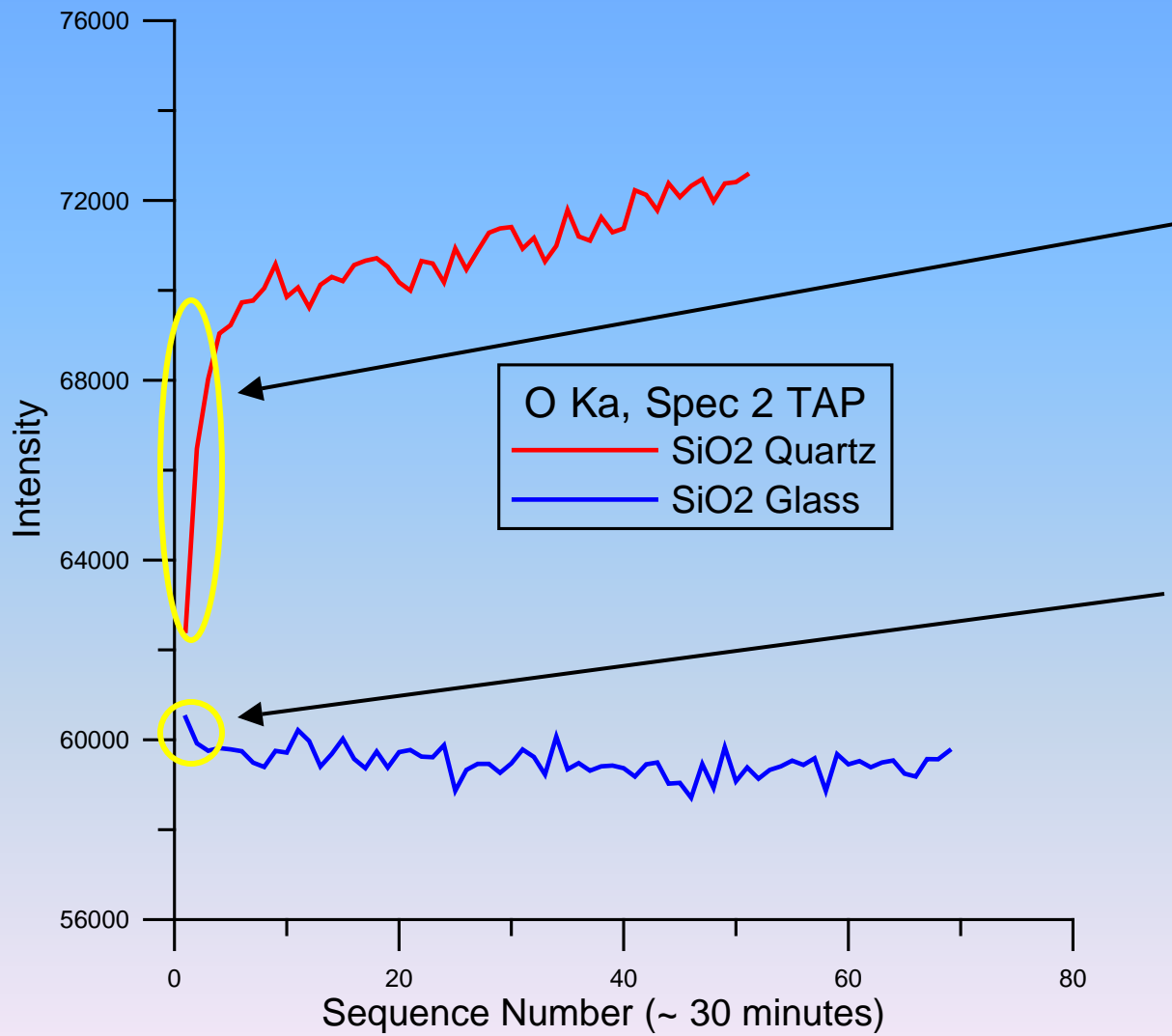
SiO2 Quartz

Beam Damage? Si Ka

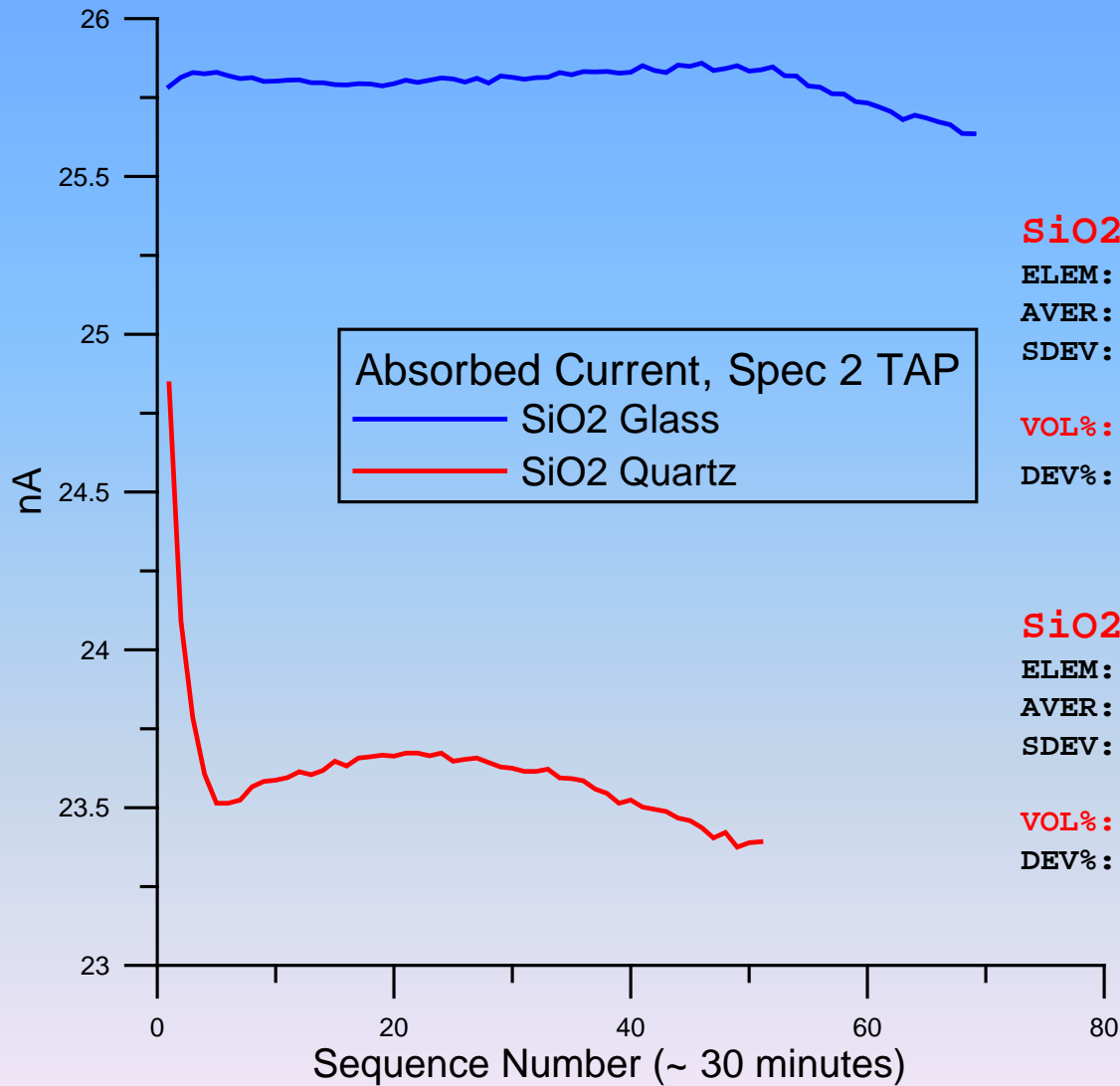


15 keV, 30 nA, focussed

Beam Damage? O Ka



Or Sub Surface Charging?



SiO2 Glass (80 sec elapsed time)

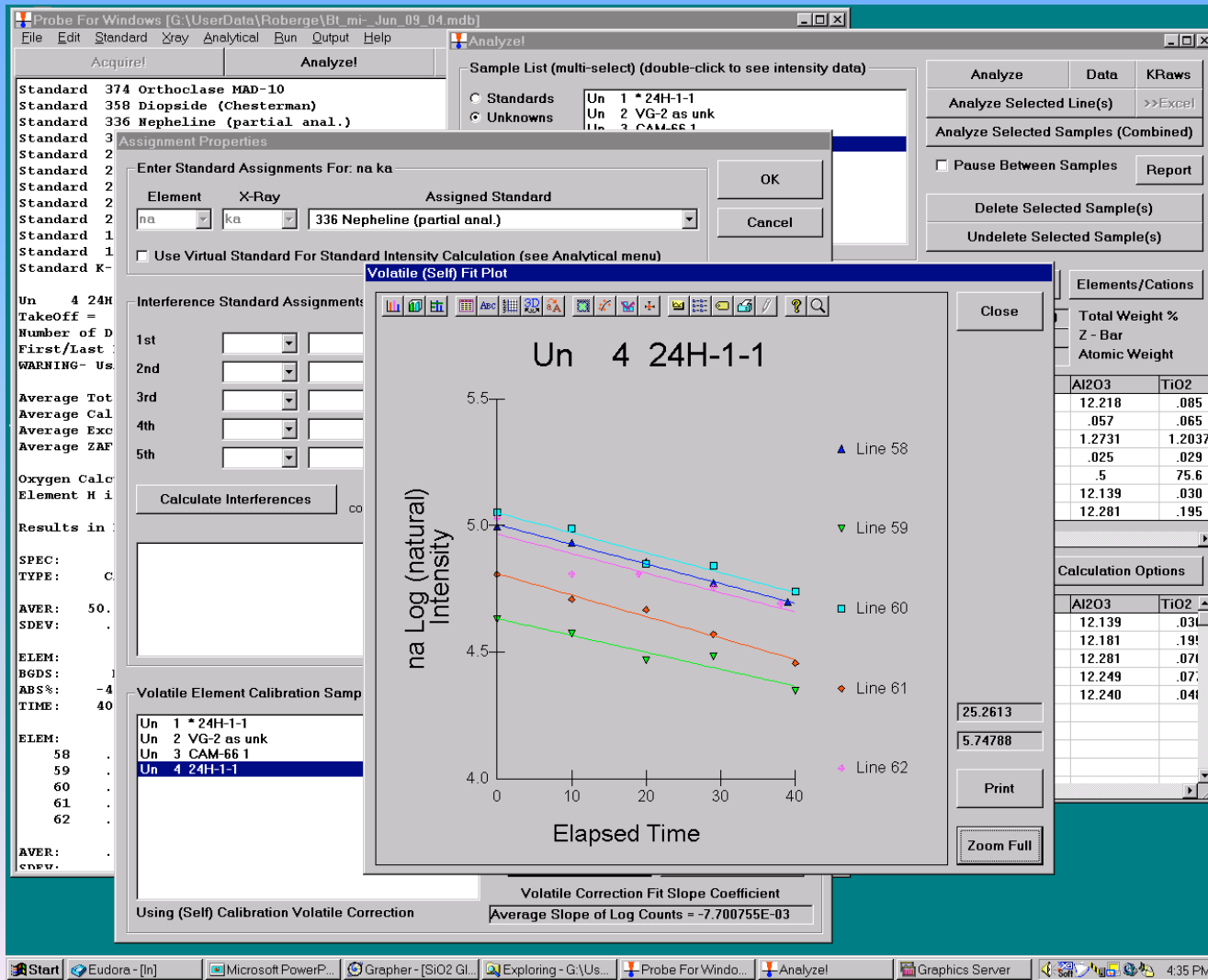
| | | | | |
|-------|--------|--------|--------|--------|
| ELEM: | Si | Si | Si | O |
| AVER: | 46.257 | 46.325 | 46.106 | 48.915 |
| SDEV: | .120 | .304 | .299 | .269 |
| VOL%: | .348 | .426 | .478 | 1.786 |
| DEV%: | .0 | .1 | .1 | .1 |

SiO2 Quartz (80 sec elapsed time)

| | | | | |
|-------|--------|--------|--------|--------|
| ELEM: | Si | Si | Si | O |
| AVER: | 46.672 | 46.614 | 46.459 | 50.260 |
| SDEV: | .145 | .383 | .327 | .371 |
| VOL%: | .346 | .038 | .290 | -8.022 |
| DEV%: | .0 | .1 | .1 | .2 |

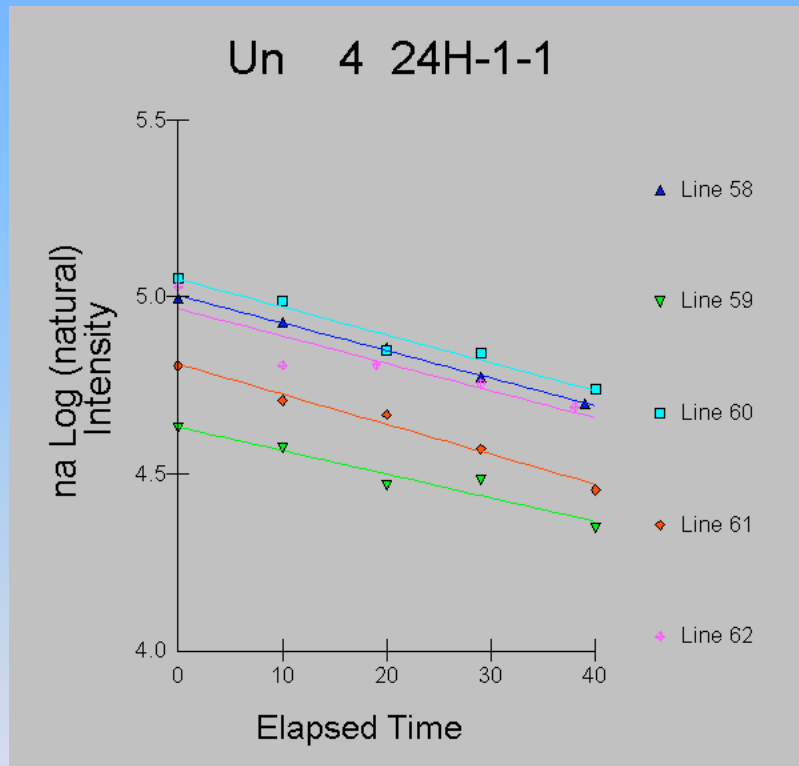
For more information see:
Cazaux, 2004

“Volatile” or Migrating Elements in Mineral Glasses



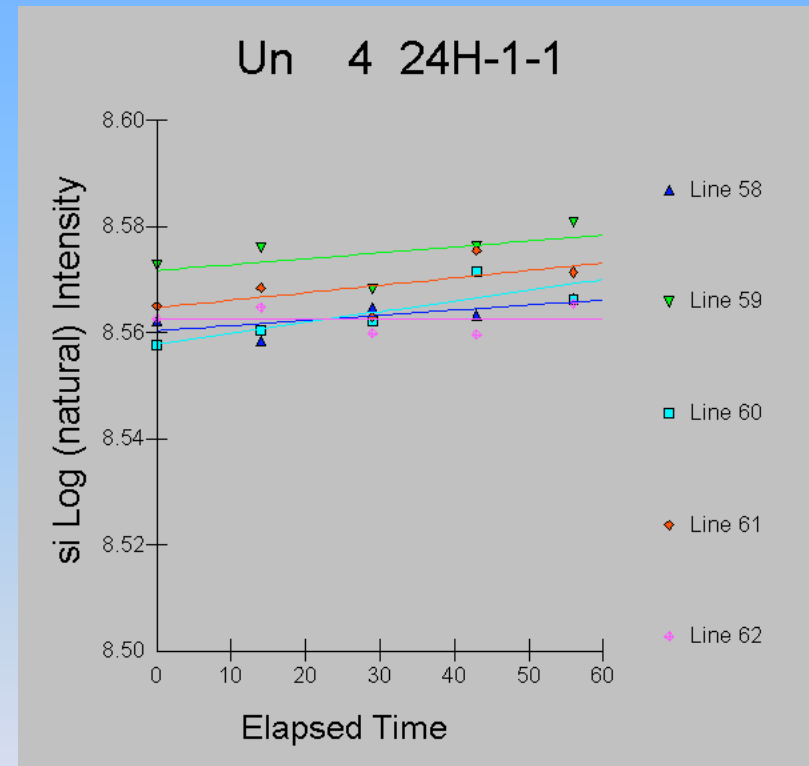
Correct for
Na, K loss
and Si and
Al gain

Change in Intensity Over Time



36% loss

15 keV, 10 nA, 10 um (linear change regime)



0.6% gain

But Not Always What You Expect!

