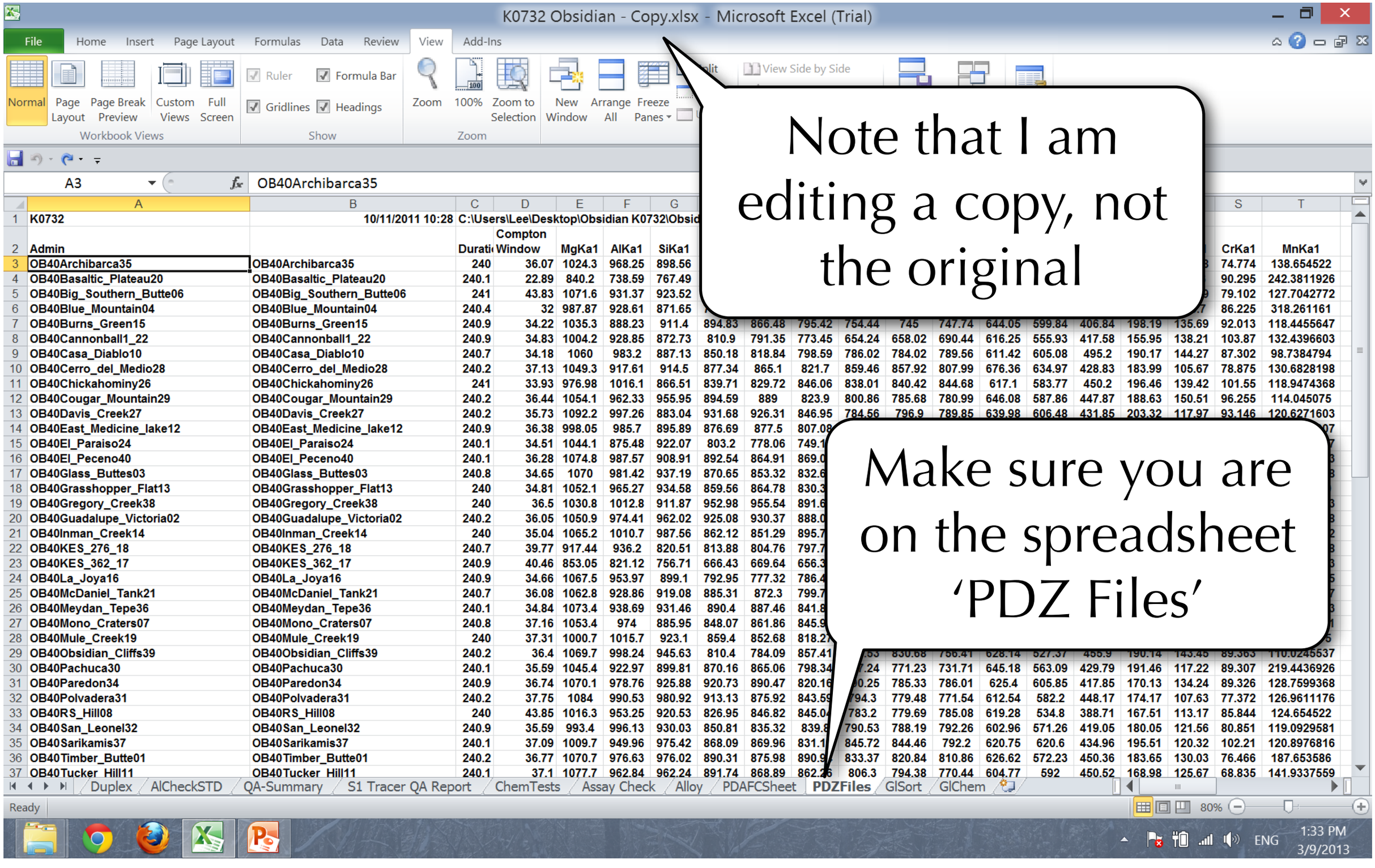
Developing a Calibration

This presentation is designed to provide a step-by-step followthrough. If you have any questions, do not hesitate to contact us.

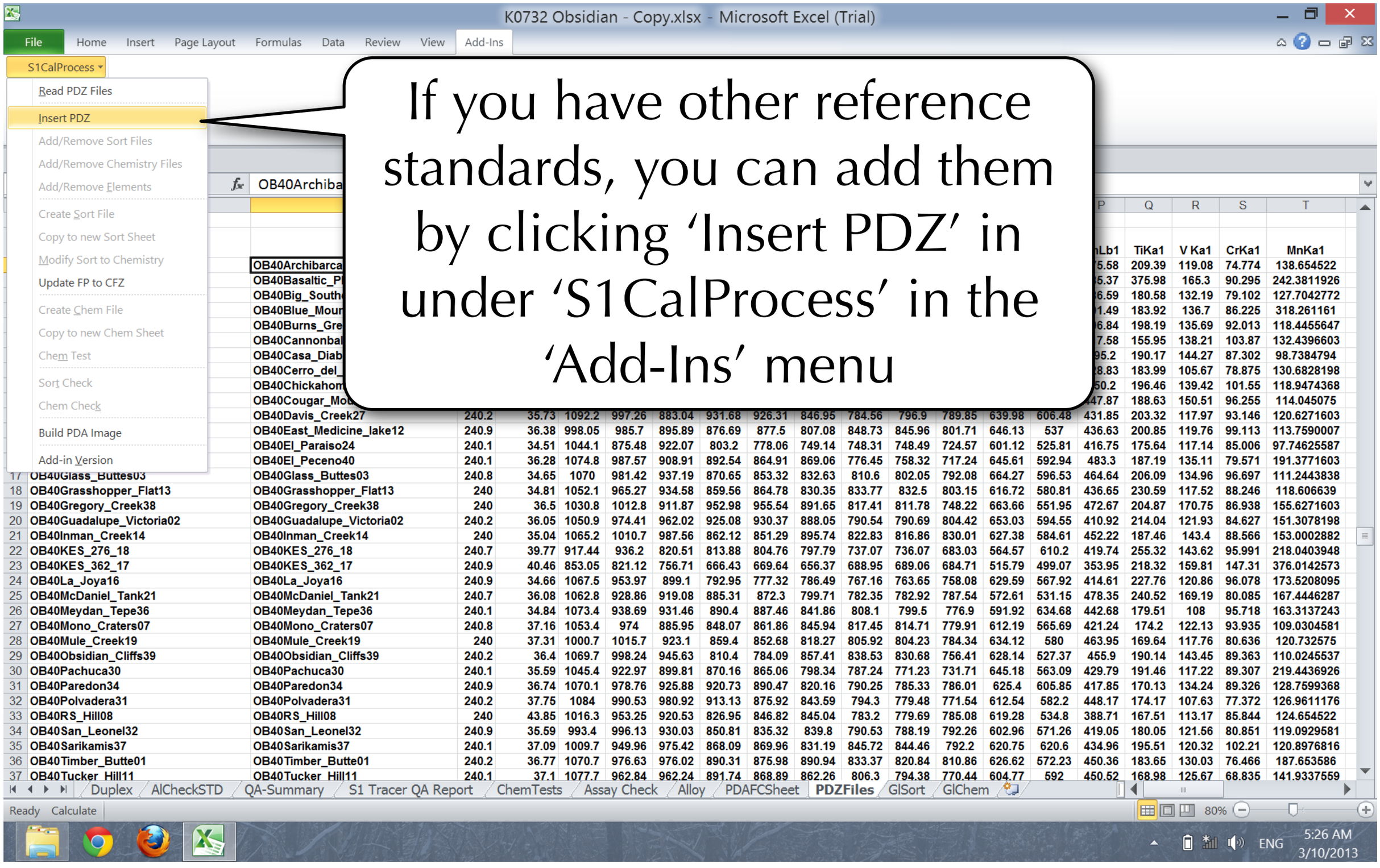
Make sure you only edit a copy of your spreadsheet, keep the original calibrations

Developing a Calibration

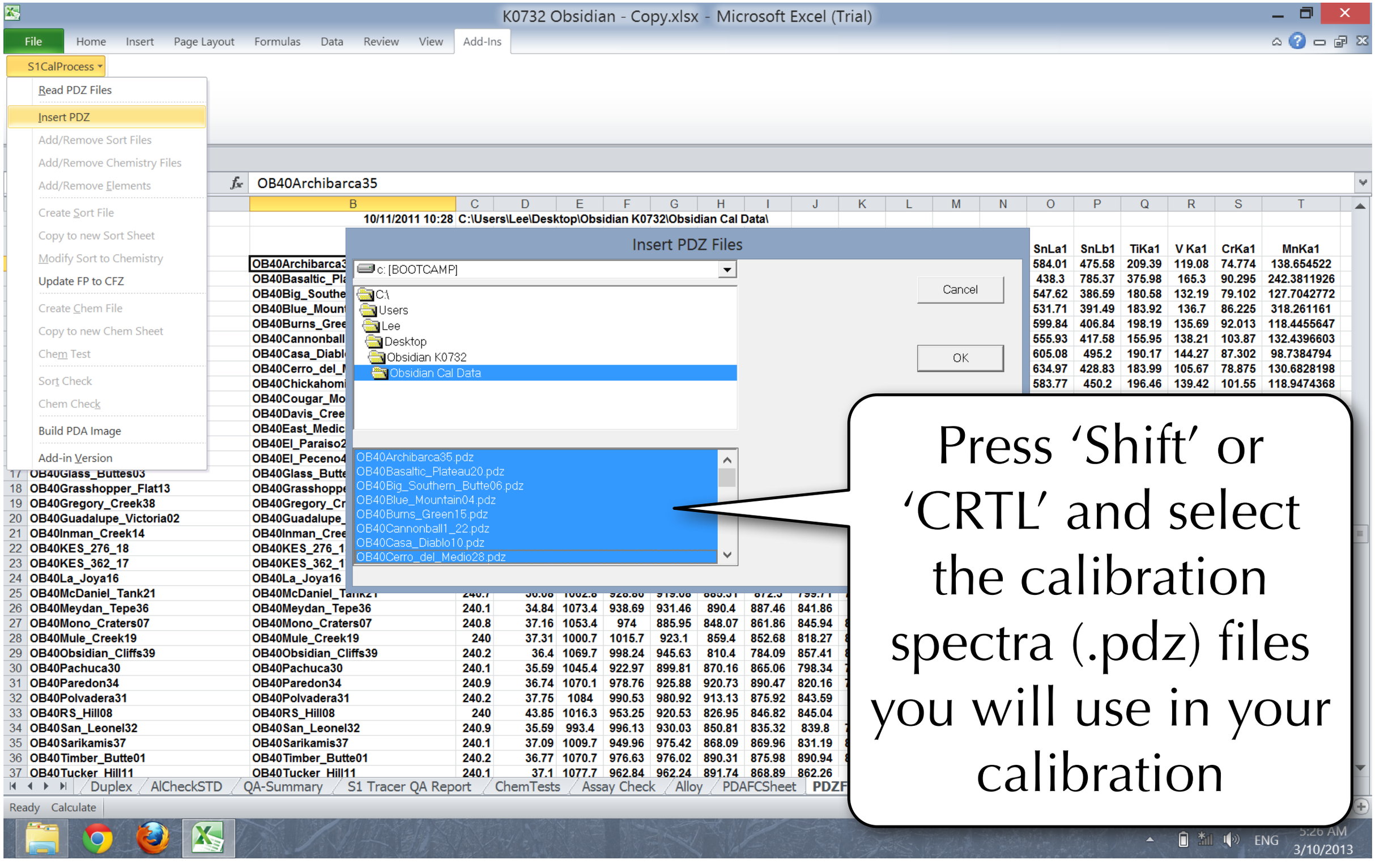


	A	B	C	D	E	F	G	S	T
1	K0732	10/11/2011 10:28	C:\Users\Lee\Desktop\Obsidian K0732\Obsid						
2	Admin		Durati	Compton Window	MgKa1	AlKa1	SiKa1	CrKa1	MnKa1
3	OB40Archibarca35	OB40Archibarca35	240	36.07	1024.3	968.25	898.56	74.774	138.654522
4	OB40Basaltic_Plateau20	OB40Basaltic_Plateau20	240.1	22.89	840.2	738.59	767.49	90.295	242.3811926
5	OB40Big_Southern_Butte06	OB40Big_Southern_Butte06	241	43.83	1071.6	931.37	923.52	79.102	127.7042772
6	OB40Blue_Mountain04	OB40Blue_Mountain04	240.4	32	987.87	928.61	871.65	86.225	318.261161
7	OB40Burns_Green15	OB40Burns_Green15	240.9	34.22	1035.3	888.23	911.4	92.013	118.4455647
8	OB40Cannonball1_22	OB40Cannonball1_22	240.9	34.83	1004.2	928.85	872.73	103.87	132.4396603
9	OB40Casa_Diablo10	OB40Casa_Diablo10	240.7	34.18	1060	983.2	887.13	87.302	98.7384794
10	OB40Cerro_del_Medio28	OB40Cerro_del_Medio28	240.2	37.13	1049.3	917.61	914.5	78.875	130.6828198
11	OB40Chickahominy26	OB40Chickahominy26	241	33.93	976.98	1016.1	866.51	101.55	118.9474368
12	OB40Cougar_Mountain29	OB40Cougar_Mountain29	240.2	36.44	1054.1	962.33	955.95	96.255	114.045075
13	OB40Davis_Creek27	OB40Davis_Creek27	240.2	35.73	1092.2	997.26	883.04	93.146	120.6271603
14	OB40East_Medicine_lake12	OB40East_Medicine_lake12	240.9	36.38	998.05	985.7	895.89		
15	OB40El_Paraiso24	OB40El_Paraiso24	240.1	34.51	1044.1	875.48	922.07		
16	OB40El_Peceno40	OB40El_Peceno40	240.1	36.28	1074.8	987.57	908.91		
17	OB40Glass_Buttes03	OB40Glass_Buttes03	240.8	34.65	1070	981.42	937.19		
18	OB40Grasshopper_Flat13	OB40Grasshopper_Flat13	240	34.81	1052.1	965.27	934.58		
19	OB40Gregory_Creek38	OB40Gregory_Creek38	240	36.5	1030.8	1012.8	911.87		
20	OB40Guadalupe_Victoria02	OB40Guadalupe_Victoria02	240.2	36.05	1050.9	974.41	962.02		
21	OB40Inman_Creek14	OB40Inman_Creek14	240	35.04	1065.2	1010.7	987.56		
22	OB40KES_276_18	OB40KES_276_18	240.7	39.77	917.44	936.2	820.51		
23	OB40KES_362_17	OB40KES_362_17	240.9	40.46	853.05	821.12	756.71		
24	OB40La_Joya16	OB40La_Joya16	240.9	34.66	1067.5	953.97	899.1		
25	OB40McDaniel_Tank21	OB40McDaniel_Tank21	240.7	36.08	1062.8	928.86	919.08		
26	OB40Meydan_Tepe36	OB40Meydan_Tepe36	240.1	34.84	1073.4	938.69	931.46		
27	OB40Mono_Craters07	OB40Mono_Craters07	240.8	37.16	1053.4	974	885.95		
28	OB40Mule_Creek19	OB40Mule_Creek19	240	37.31	1000.7	1015.7	923.1		
29	OB40Obsidian_Cliffs39	OB40Obsidian_Cliffs39	240.2	36.4	1069.7	998.24	945.63		
30	OB40Pachuca30	OB40Pachuca30	240.1	35.59	1045.4	922.97	899.81		
31	OB40Paredon34	OB40Paredon34	240.9	36.74	1070.1	978.76	925.88		
32	OB40Polvadera31	OB40Polvadera31	240.2	37.75	1084	990.53	980.92		
33	OB40RS_Hill08	OB40RS_Hill08	240	43.85	1016.3	953.25	920.53		
34	OB40San_Leonel32	OB40San_Leonel32	240.9	35.59	993.4	996.13	930.03		
35	OB40Sarikamis37	OB40Sarikamis37	240.1	37.09	1009.7	949.96	975.42		
36	OB40Timber_Butte01	OB40Timber_Butte01	240.2	36.77	1070.7	976.63	976.02		
37	OB40Tucker_Hill11	OB40Tucker_Hill11	240.1	37.1	1077.7	962.84	962.24		

Developing a Calibration

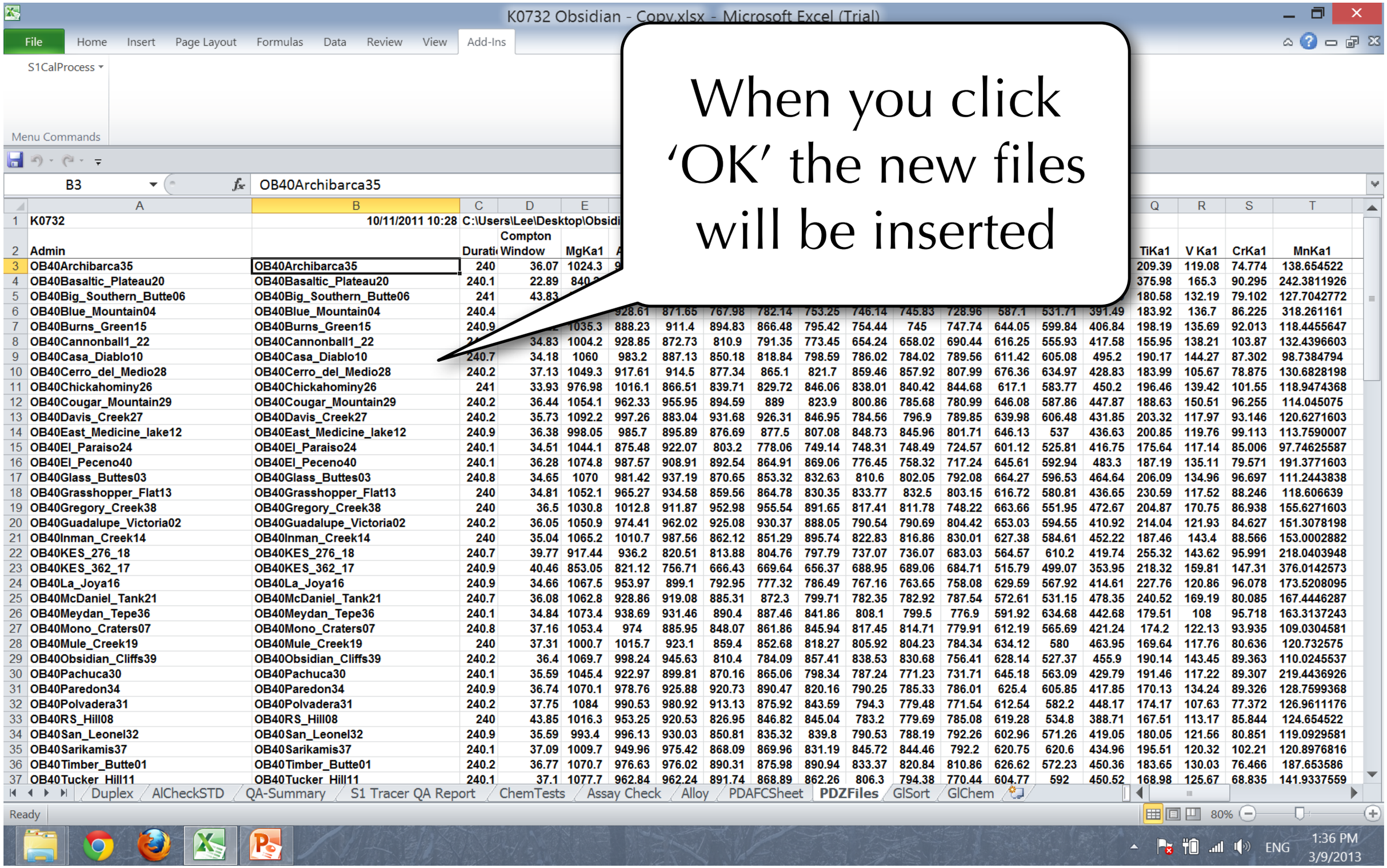


Developing a Calibration



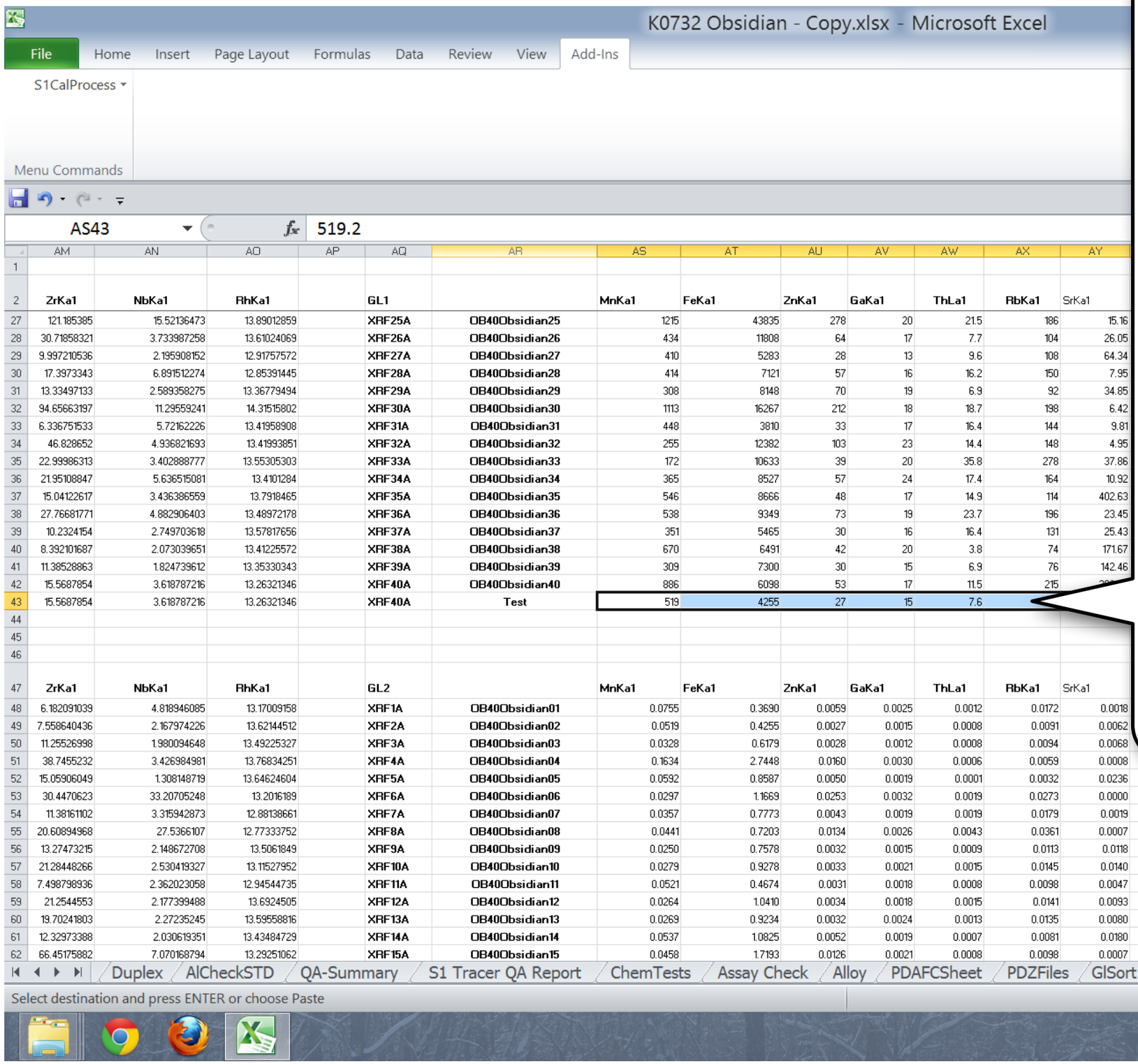
Press ‘Shift’ or ‘CRTL’ and select the calibration spectra (.pdz) files you will use in your calibration

Developing a Calibration



	A	B	C	D	E	Q	R	S	T
1	K0732	10/11/2011 10:28	C:\Users\Lee\Desktop\Obsidi						
2	Admin		Durati	Compton Window	MgKa1	TiKa1	V Ka1	CrKa1	MnKa1
3	OB40Archibarca35	OB40Archibarca35	240	36.07	1024.3	209.39	119.08	74.774	138.654522
4	OB40Basaltic_Plateau20	OB40Basaltic_Plateau20	240.1	22.89	840.2	375.98	165.3	90.295	242.3811926
5	OB40Big_Southern_Butte06	OB40Big_Southern_Butte06	241	43.83		180.58	132.19	79.102	127.7042772
6	OB40Blue_Mountain04	OB40Blue_Mountain04	240.4		928.61	183.92	136.7	86.225	318.261161
7	OB40Burns_Green15	OB40Burns_Green15	240.9		1035.3	198.19	135.69	92.013	118.4455647
8	OB40Cannonball1_22	OB40Cannonball1_22	24	34.83	1004.2	155.95	138.21	103.87	132.4396603
9	OB40Casa_Diablo10	OB40Casa_Diablo10	240.7	34.18	1060	190.17	144.27	87.302	98.7384794
10	OB40Cerro_del_Medio28	OB40Cerro_del_Medio28	240.2	37.13	1049.3	183.99	105.67	78.875	130.6828198
11	OB40Chickahominy26	OB40Chickahominy26	241	33.93	976.98	196.46	139.42	101.55	118.9474368
12	OB40Cougar_Mountain29	OB40Cougar_Mountain29	240.2	36.44	1054.1	188.63	150.51	96.255	114.045075
13	OB40Davis_Creek27	OB40Davis_Creek27	240.2	35.73	1092.2	203.32	117.97	93.146	120.6271603
14	OB40East_Medicine_lake12	OB40East_Medicine_lake12	240.9	36.38	998.05	200.85	119.76	99.113	113.7590007
15	OB40El_Paraiso24	OB40El_Paraiso24	240.1	34.51	1044.1	175.64	117.14	85.006	97.74625587
16	OB40El_Peceno40	OB40El_Peceno40	240.1	36.28	1074.8	187.19	135.11	79.571	191.3771603
17	OB40Glass_Buttes03	OB40Glass_Buttes03	240.8	34.65	1070	206.09	134.96	96.697	111.2443838
18	OB40Grasshopper_Flat13	OB40Grasshopper_Flat13	240	34.81	1052.1	230.59	117.52	88.246	118.606639
19	OB40Gregory_Creek38	OB40Gregory_Creek38	240	36.5	1030.8	204.87	170.75	86.938	155.6271603
20	OB40Guadalupe_Victoria02	OB40Guadalupe_Victoria02	240.2	36.05	1050.9	214.04	121.93	84.627	151.3078198
21	OB40Inman_Creek14	OB40Inman_Creek14	240	35.04	1065.2	187.46	143.4	88.566	153.0002882
22	OB40KES_276_18	OB40KES_276_18	240.7	39.77	917.44	255.32	143.62	95.991	218.0403948
23	OB40KES_362_17	OB40KES_362_17	240.9	40.46	853.05	218.32	159.81	147.31	376.0142573
24	OB40La_Joya16	OB40La_Joya16	240.9	34.66	1067.5	227.76	120.86	96.078	173.5208095
25	OB40McDaniel_Tank21	OB40McDaniel_Tank21	240.7	36.08	1062.8	240.52	169.19	80.085	167.4446287
26	OB40Meydan_Tepe36	OB40Meydan_Tepe36	240.1	34.84	1073.4	179.51	108	95.718	163.3137243
27	OB40Mono_Craters07	OB40Mono_Craters07	240.8	37.16	1053.4	174.2	122.13	93.935	109.0304581
28	OB40Mule_Creek19	OB40Mule_Creek19	240	37.31	1000.7	169.64	117.76	80.636	120.732575
29	OB40Obsidian_Cliffs39	OB40Obsidian_Cliffs39	240.2	36.4	1069.7	190.14	143.45	89.363	110.0245537
30	OB40Pachuca30	OB40Pachuca30	240.1	35.59	1045.4	191.46	117.22	89.307	219.4436926
31	OB40Paredon34	OB40Paredon34	240.9	36.74	1070.1	170.13	134.24	89.326	128.7599368
32	OB40Polvadera31	OB40Polvadera31	240.2	37.75	1084	174.17	107.63	77.372	126.9611176
33	OB40RS_Hill08	OB40RS_Hill08	240	43.85	1016.3	167.51	113.17	85.844	124.654522
34	OB40San_Leonel32	OB40San_Leonel32	240.9	35.59	993.4	180.05	121.56	80.851	119.0929581
35	OB40Sarikamis37	OB40Sarikamis37	240.1	37.09	1009.7	195.51	120.32	102.21	120.8976816
36	OB40Timber_Butte01	OB40Timber_Butte01	240.2	36.77	1070.7	183.65	130.03	76.466	187.653586
37	OB40Tucker_Hill11	OB40Tucker_Hill11	240.1	37.1	1077.7	168.98	125.67	68.835	141.9337559

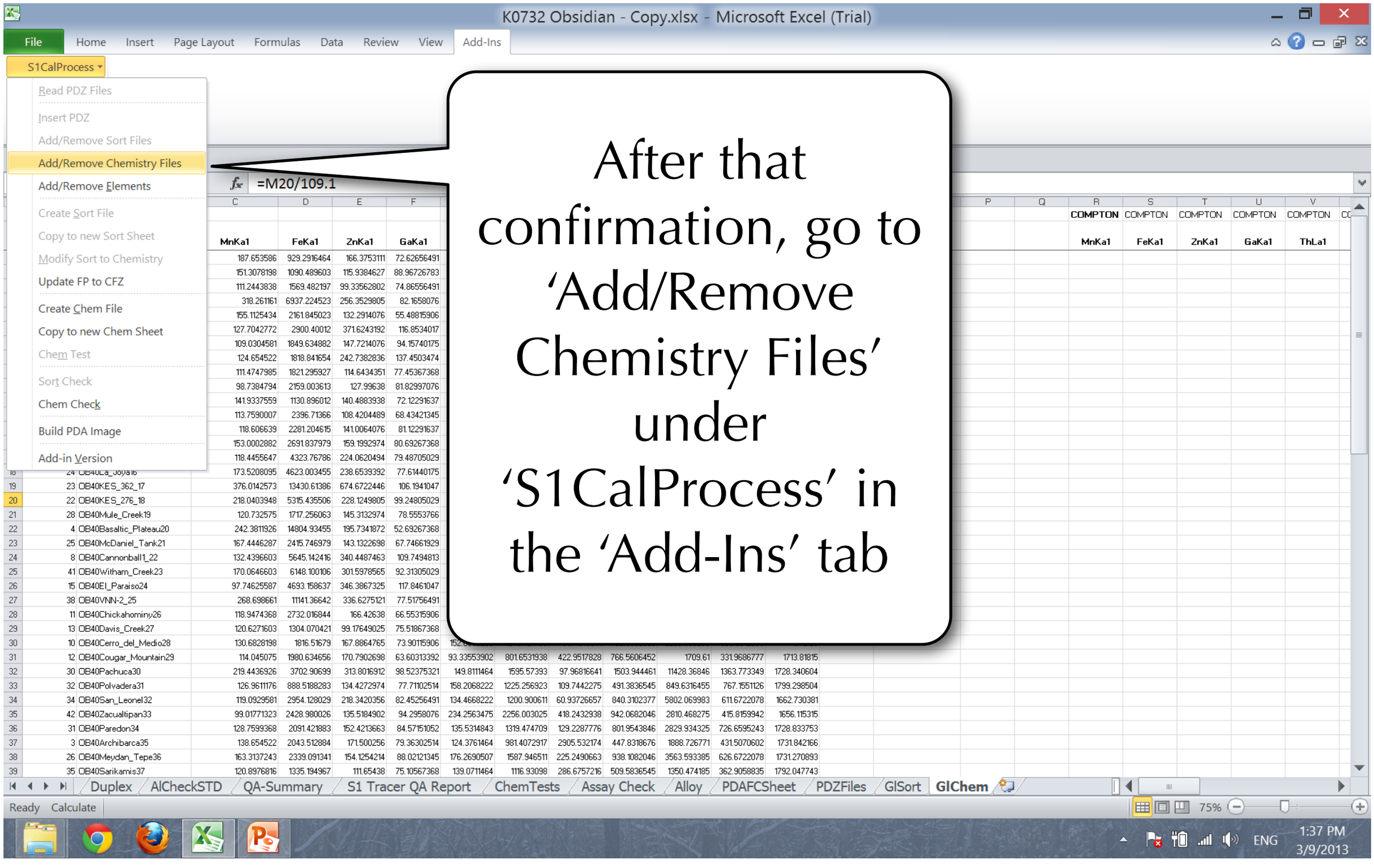
Developing a Calibration



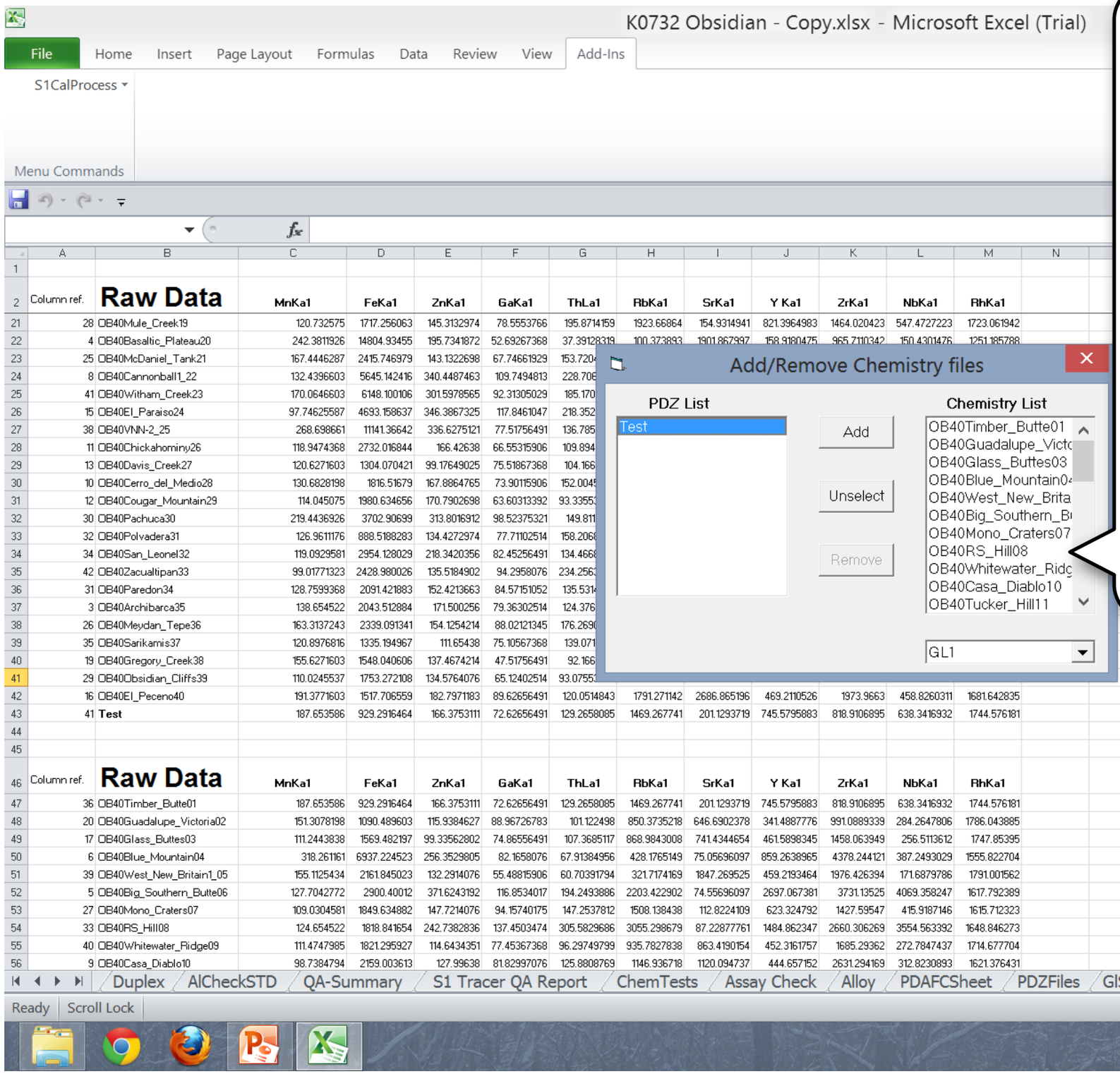
	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY
1													
2	ZrKa1	NbKa1	RhKa1		GL1		MnKa1	FeKa1	ZnKa1	GaKa1	ThLa1	RbKa1	SrKa1
27	121.185385	15.52136473	13.89012859		XRF25A	OB40Obsidian25	1215	43835	278	20	21.5	186	15.16
28	30.71858321	3.733987258	13.61024069		XRF26A	OB40Obsidian26	434	11808	64	17	7.7	104	26.05
29	9.997210536	2.195908152	12.91757572		XRF27A	OB40Obsidian27	410	5283	28	13	9.6	108	64.34
30	17.3973343	6.891512274	12.85391445		XRF28A	OB40Obsidian28	414	7121	57	16	16.2	150	7.95
31	13.33497133	2.589358275	13.36779494		XRF29A	OB40Obsidian29	308	8148	70	19	6.9	92	34.85
32	94.65663197	11.29559241	14.31515802		XRF30A	OB40Obsidian30	1113	16267	212	18	18.7	198	6.42
33	6.336751533	5.72162226	13.41958908		XRF31A	OB40Obsidian31	448	3810	33	17	16.4	144	9.81
34	46.828652	4.936821693	13.41993851		XRF32A	OB40Obsidian32	255	12382	103	23	14.4	148	4.95
35	22.99986313	3.402888777	13.55305303		XRF33A	OB40Obsidian33	172	10633	39	20	35.8	278	37.86
36	21.95108847	5.636515081	13.4101284		XRF34A	OB40Obsidian34	365	8527	57	24	17.4	164	10.92
37	15.04122617	3.436386559	13.7918465		XRF35A	OB40Obsidian35	546	8666	48	17	14.9	114	402.63
38	27.76681771	4.882906403	13.48972178		XRF36A	OB40Obsidian36	538	9349	73	19	23.7	196	23.45
39	10.2324154	2.749703618	13.57817656		XRF37A	OB40Obsidian37	351	5465	30	16	16.4	131	25.43
40	8.392101687	2.073039651	13.41225572		XRF38A	OB40Obsidian38	670	6491	42	20	3.8	74	171.67
41	11.38528863	1.824739612	13.35330343		XRF39A	OB40Obsidian39	309	7300	30	15	6.9	76	142.46
42	15.5687854	3.618787216	13.26321346		XRF40A	OB40Obsidian40	886	6098	53	17	11.5	215	
43	15.5687854	3.618787216	13.26321346		XRF40A	Test	519	4255	27	15	7.6		
44													
45													
46													
47	ZrKa1	NbKa1	RhKa1		GL2		MnKa1	FeKa1	ZnKa1	GaKa1	ThLa1	RbKa1	SrKa1
48	6.182091039	4.818946085	13.17009158		XRF1A	OB40Obsidian01	0.0755	0.3690	0.0059	0.0025	0.0012	0.0172	0.0018
49	7.558640436	2.167974226	13.62144512		XRF2A	OB40Obsidian02	0.0519	0.4255	0.0027	0.0015	0.0008	0.0091	0.0062
50	11.25526998	1.980094648	13.49225327		XRF3A	OB40Obsidian03	0.0328	0.6179	0.0028	0.0012	0.0008	0.0094	0.0068
51	38.7455232	3.426984981	13.76834251		XRF4A	OB40Obsidian04	0.1634	2.7448	0.0160	0.0030	0.0006	0.0059	0.0008
52	15.05906049	1.308148719	13.64624604		XRF5A	OB40Obsidian05	0.0592	0.8587	0.0050	0.0019	0.0001	0.0032	0.0236
53	30.4470623	33.20705248	13.2016189		XRF6A	OB40Obsidian06	0.0297	1.1669	0.0253	0.0032	0.0019	0.0273	0.0000
54	11.38161102	3.315942873	12.88138661		XRF7A	OB40Obsidian07	0.0357	0.7773	0.0043	0.0019	0.0019	0.0179	0.0019
55	20.60894968	27.5366107	12.77333752		XRF8A	OB40Obsidian08	0.0441	0.7203	0.0134	0.0026	0.0043	0.0361	0.0007
56	13.27473215	2.148672708	13.5061849		XRF9A	OB40Obsidian09	0.0250	0.7578	0.0032	0.0015	0.0009	0.0113	0.0118
57	21.28448266	2.530419327	13.11527952		XRF10A	OB40Obsidian10	0.0279	0.9278	0.0033	0.0021	0.0015	0.0145	0.0140
58	7.498798936	2.362023058	12.94544735		XRF11A	OB40Obsidian11	0.0521	0.4674	0.0031	0.0018	0.0008	0.0098	0.0047
59	21.2544553	2.177399488	13.6924505		XRF12A	OB40Obsidian12	0.0264	1.0410	0.0034	0.0018	0.0015	0.0141	0.0093
60	19.70241803	2.27235245	13.59558816		XRF13A	OB40Obsidian13	0.0269	0.9234	0.0032	0.0024	0.0013	0.0135	0.0080
61	12.32973388	2.030619351	13.43484729		XRF14A	OB40Obsidian14	0.0537	1.0825	0.0052	0.0019	0.0007	0.0081	0.0180
62	66.45175882	7.070168794	13.29251062		XRF15A	OB40Obsidian15	0.0458	1.7193	0.0126	0.0021	0.0008	0.0098	0.0007

Navigate to ‘GlChem’ and make sure you have raw data for your reference standards entered to the far right (for both GL1 on top of GL2 on bottom)

Developing a Calibration



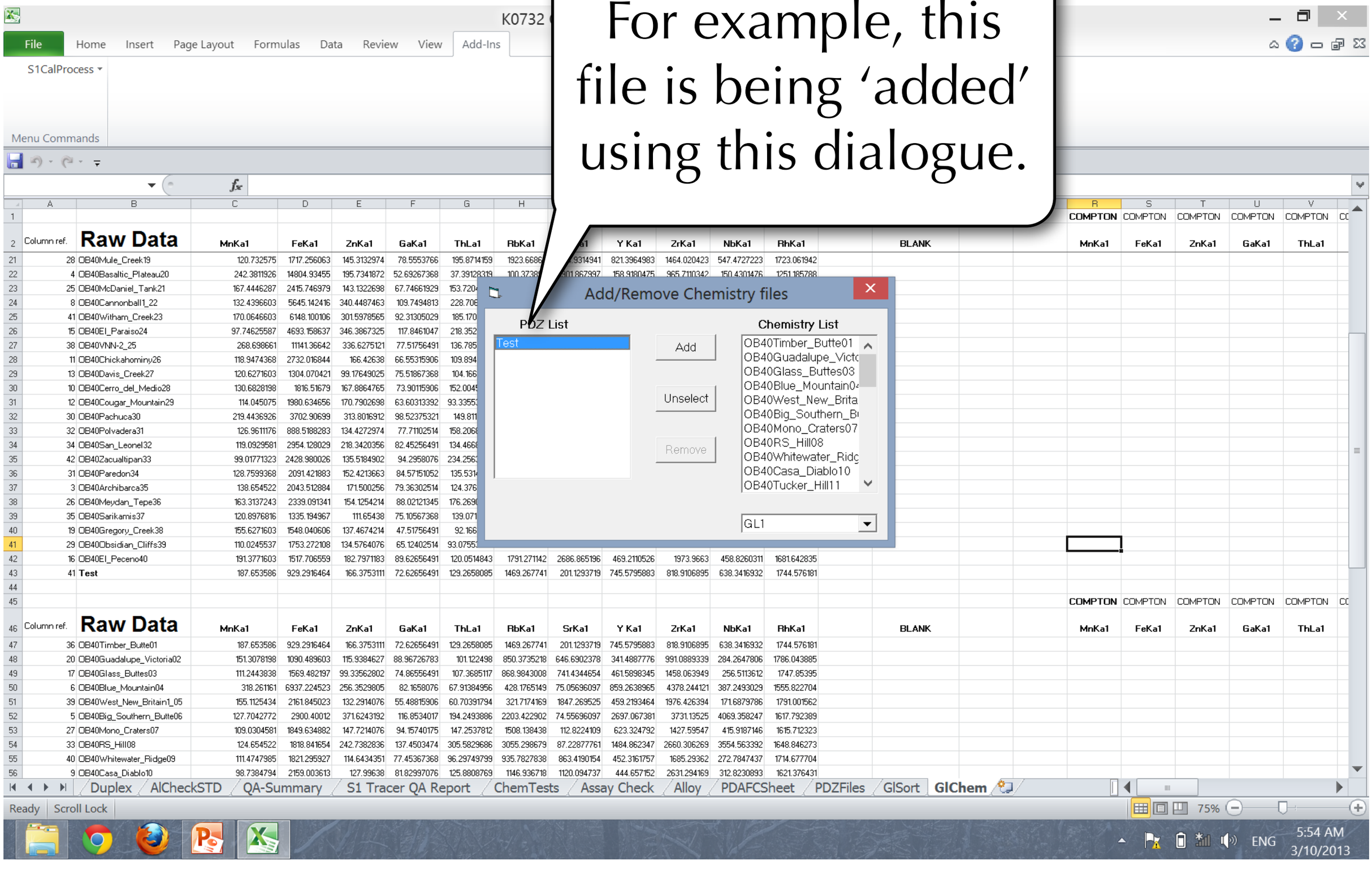
Developing a Calibration



Check on the chemistry files (.pdz) you will use. They do not need to be highlighted unless you are removing or adding them.

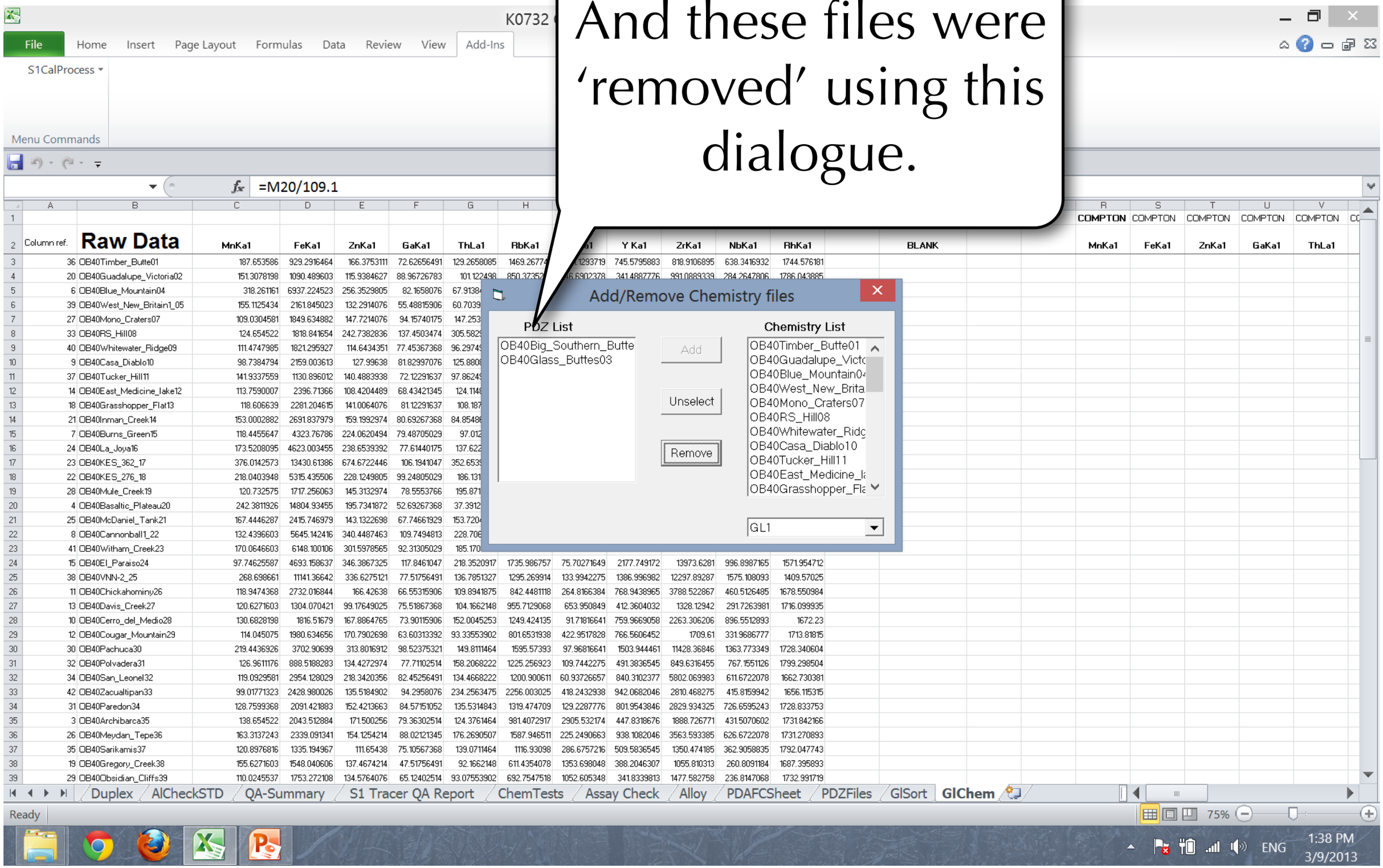
Developing a Calibration

For example, this file is being ‘added’ using this dialogue.

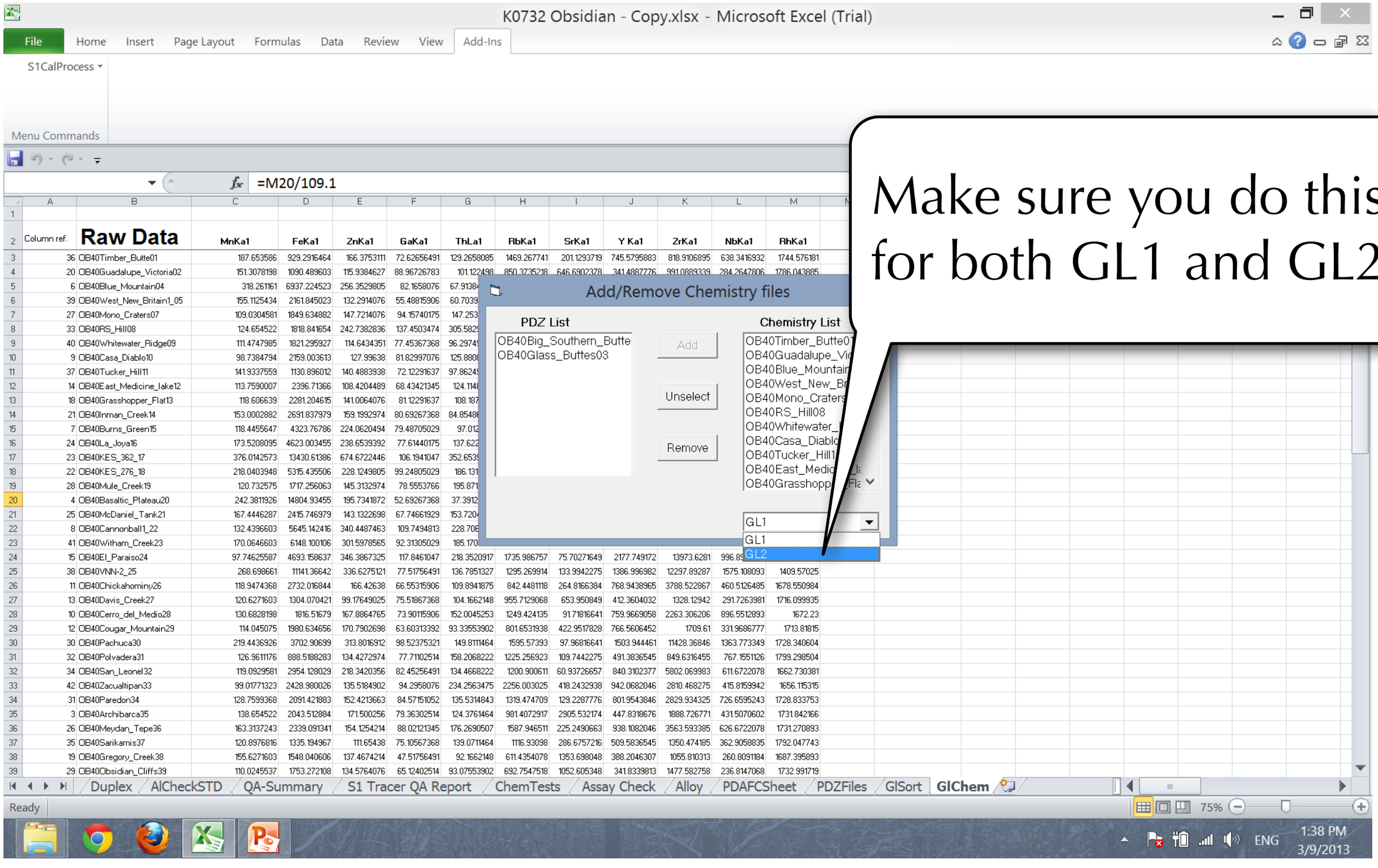


Developing a Calibration

And these files were ‘removed’ using this dialogue.

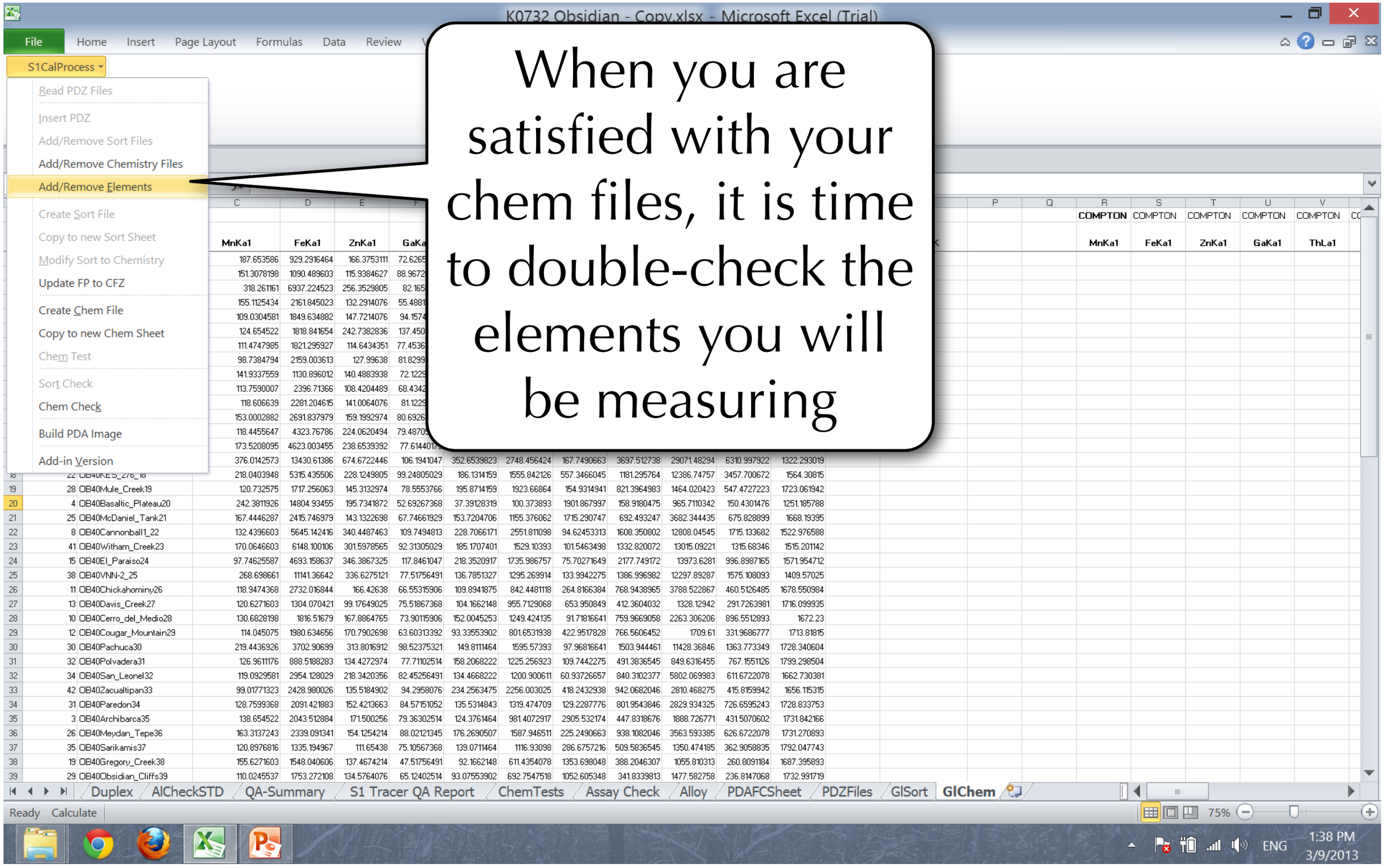


Developing a Calibration

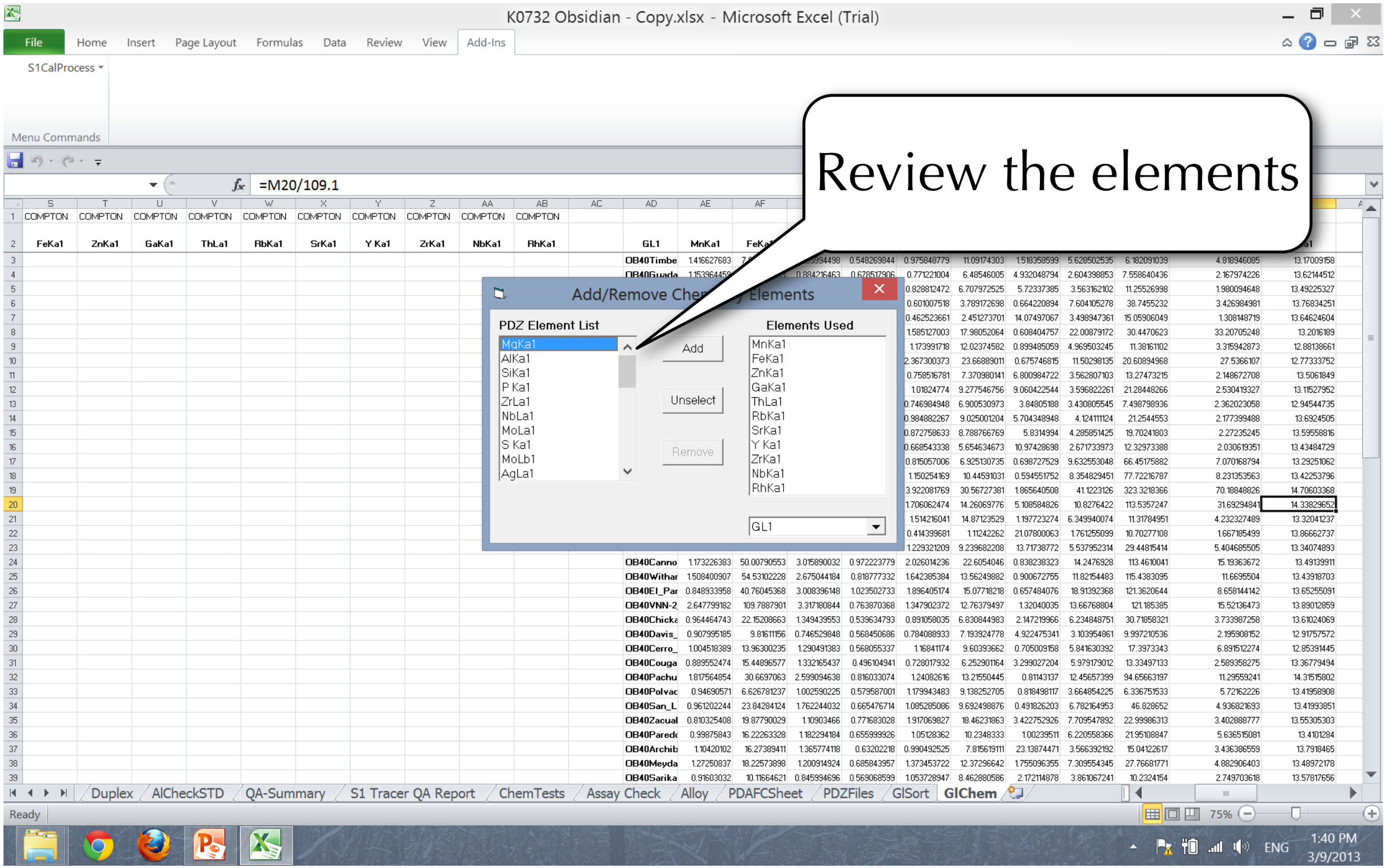


Make sure you do this for both GL1 and GL2

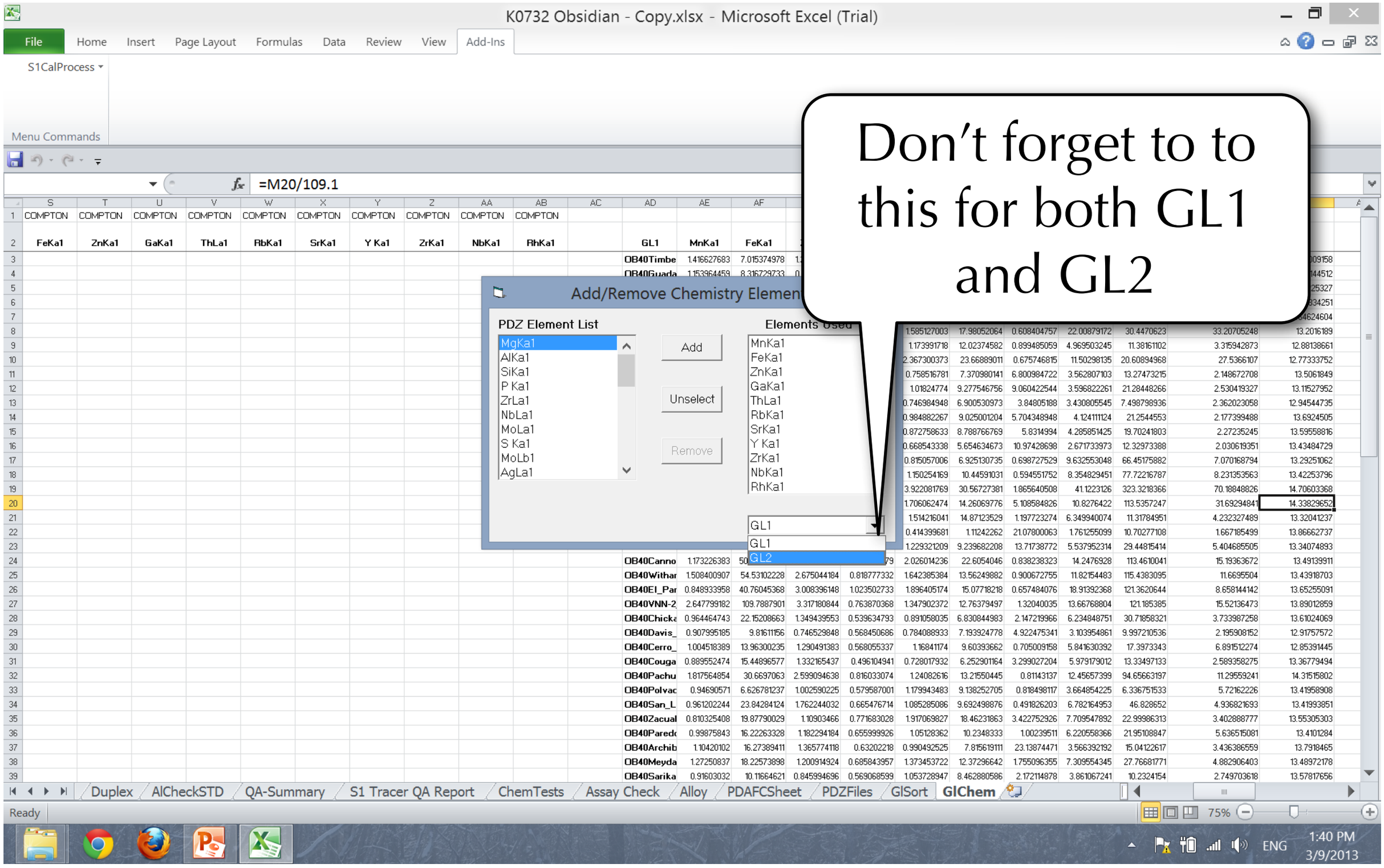
Developing a Calibration



Developing a Calibration

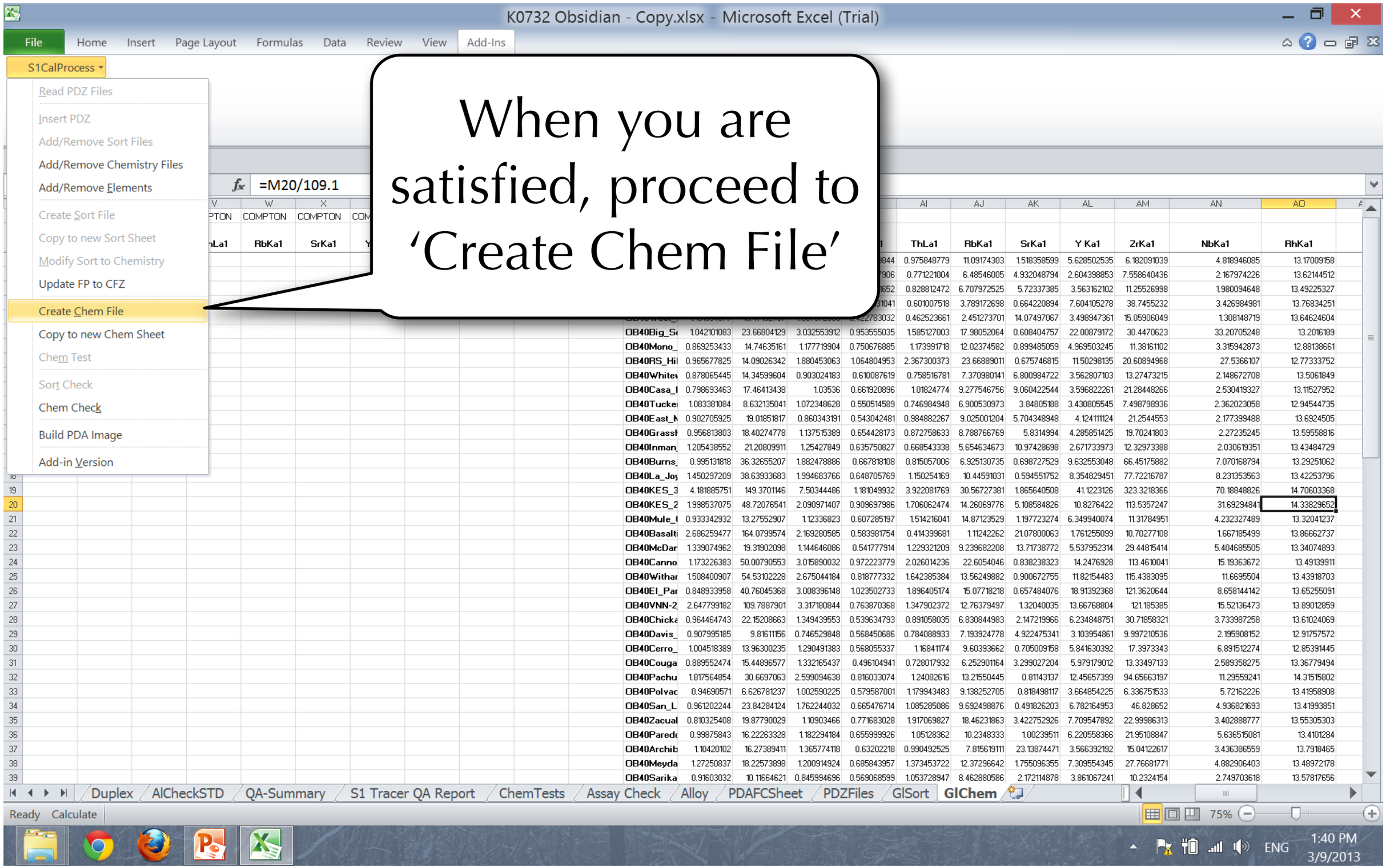


Developing a Calibration



Developing a Calibration

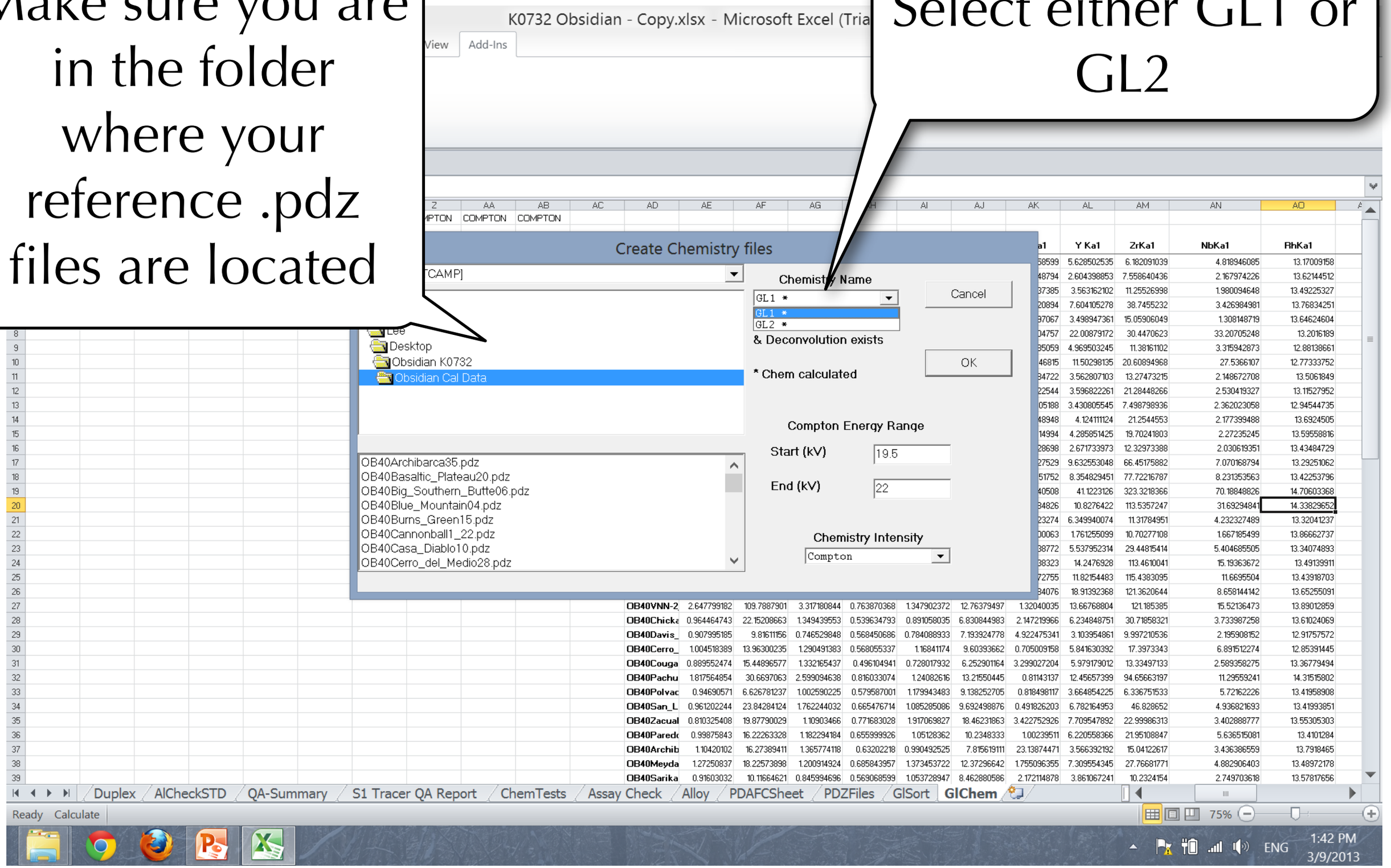
When you are satisfied, proceed to ‘Create Chem File’



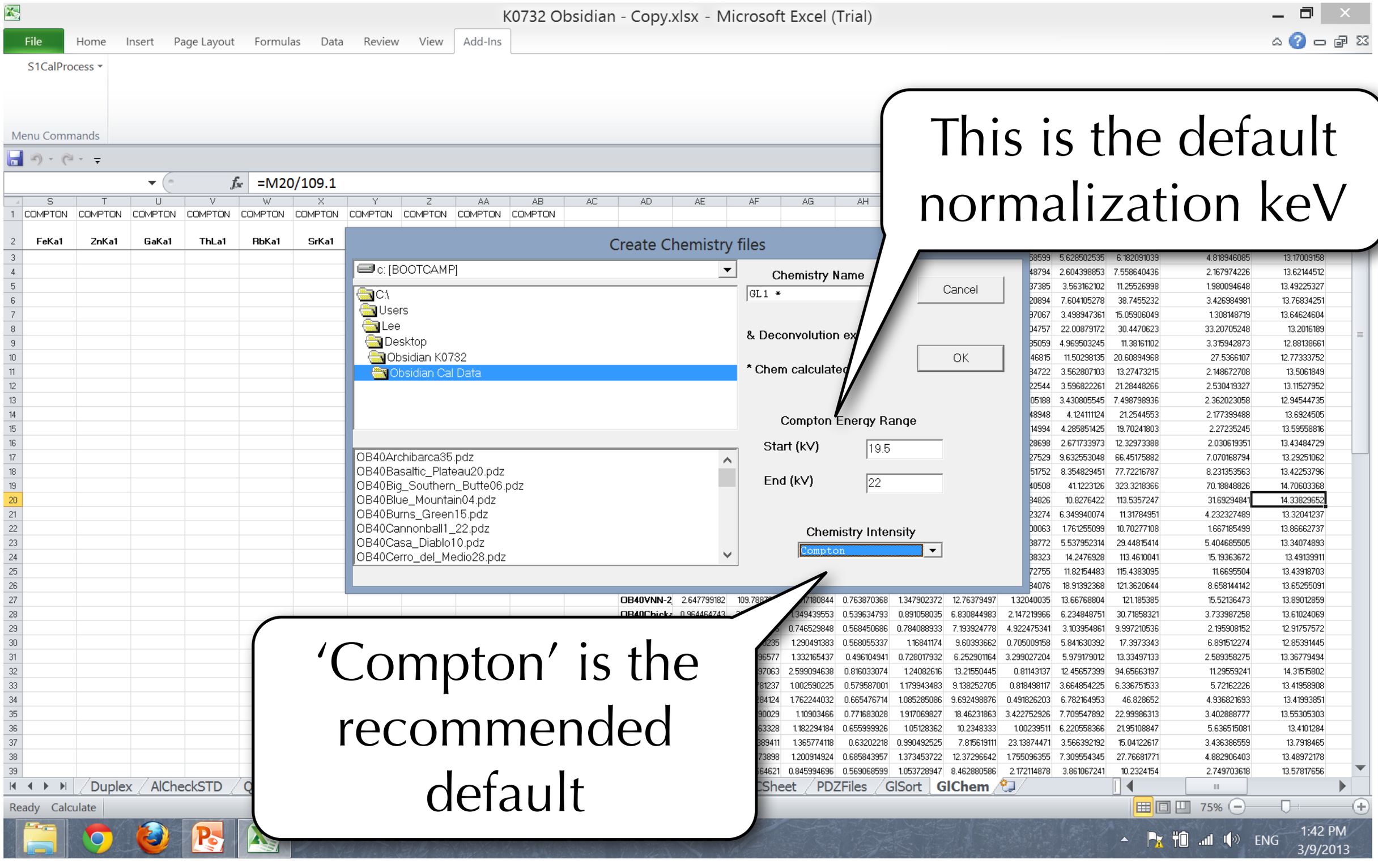
Developing a Calibration

Make sure you are in the folder where your reference .pdz files are located

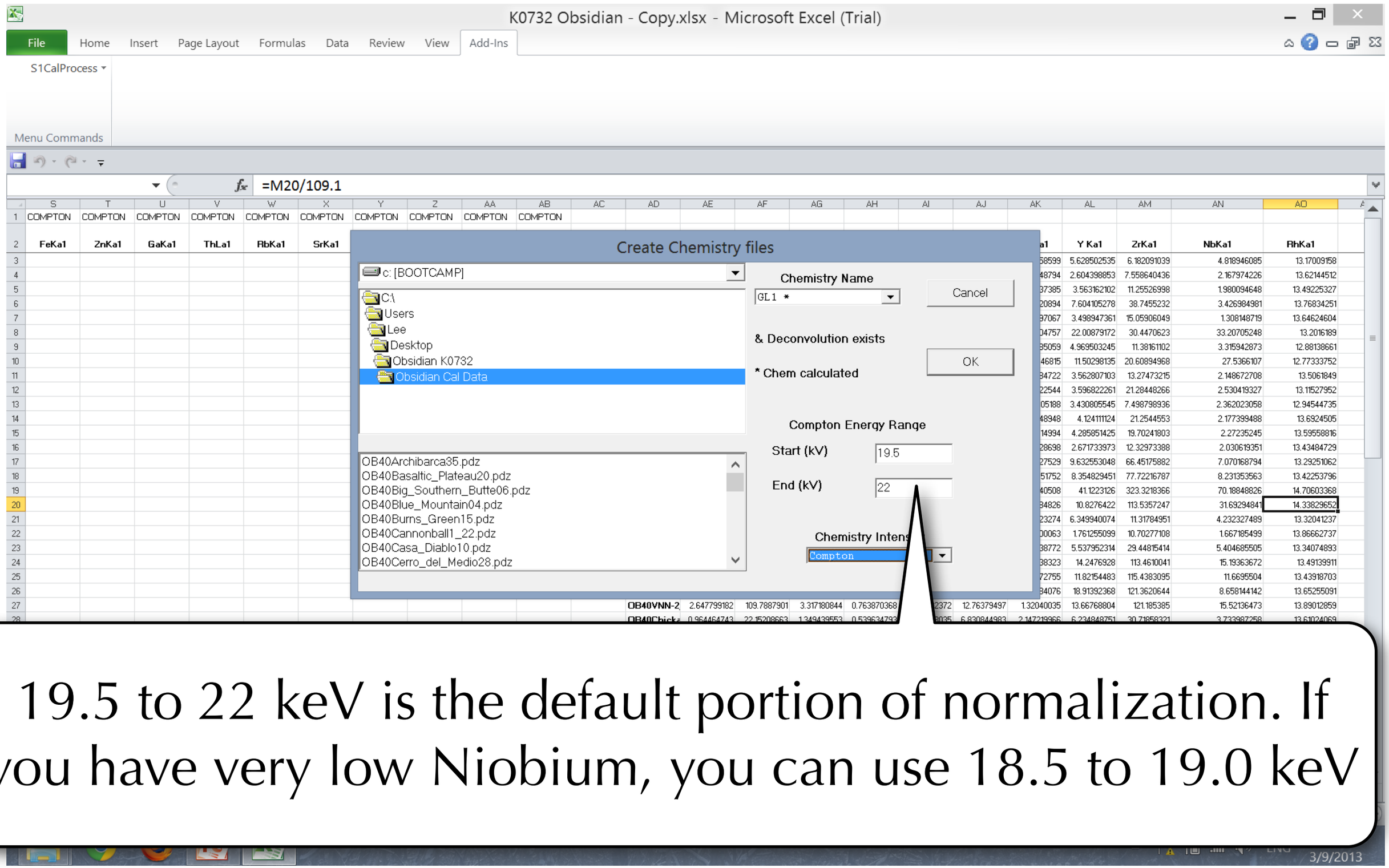
Select either GL1 or GL2



Developing a Calibration

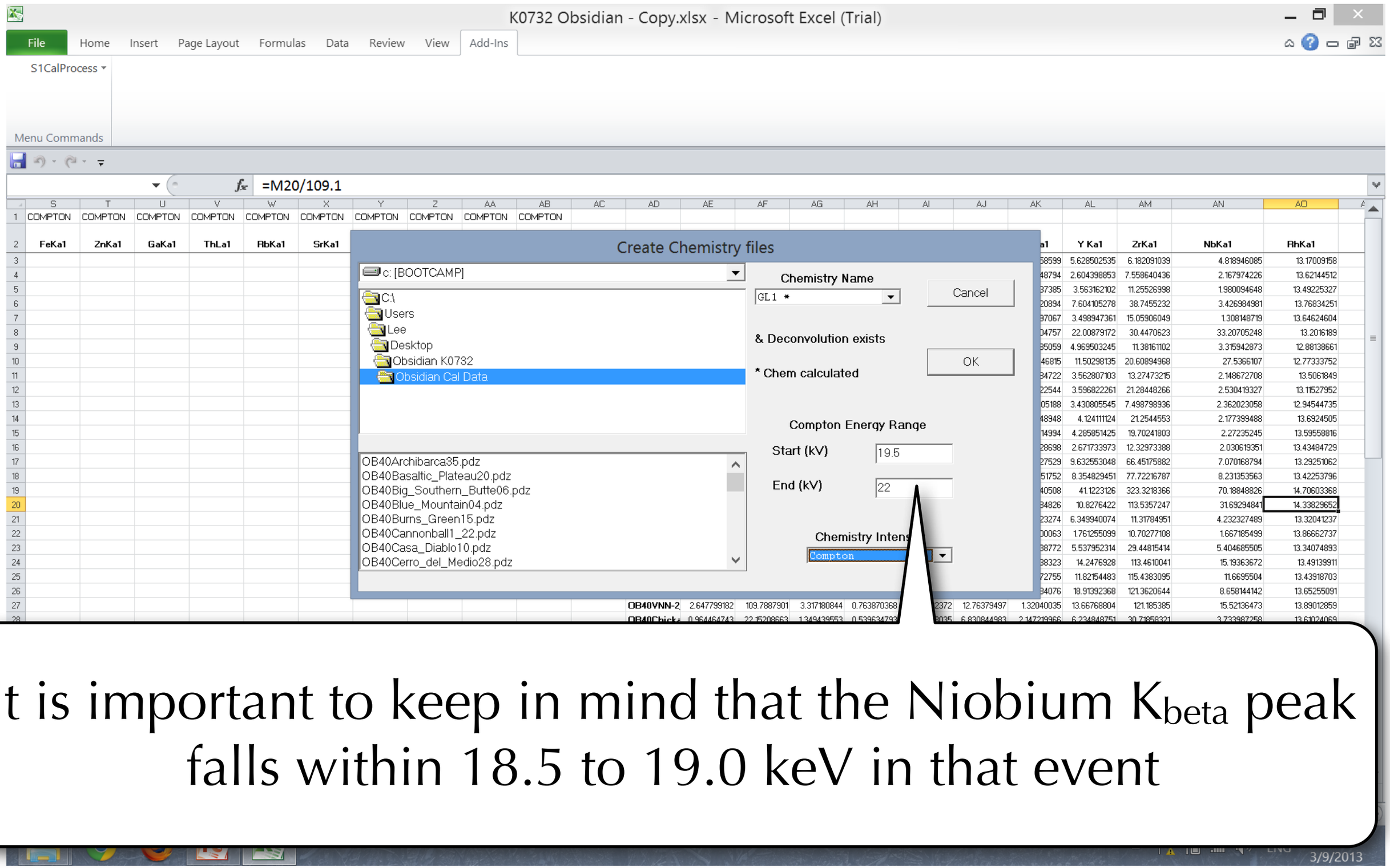


Developing a Calibration



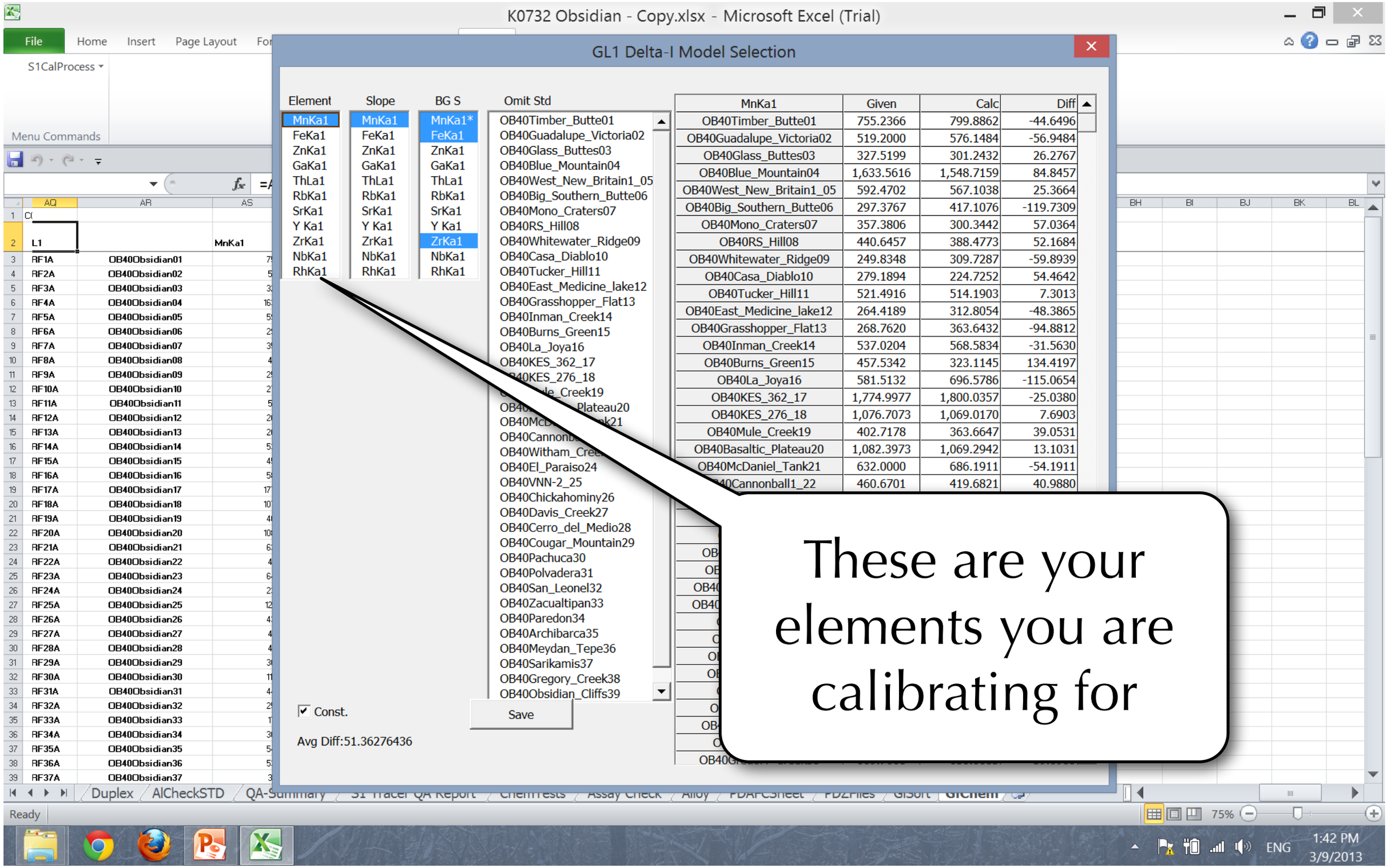
19.5 to 22 keV is the default portion of normalization. If you have very low Niobium, you can use 18.5 to 19.0 keV

Developing a Calibration

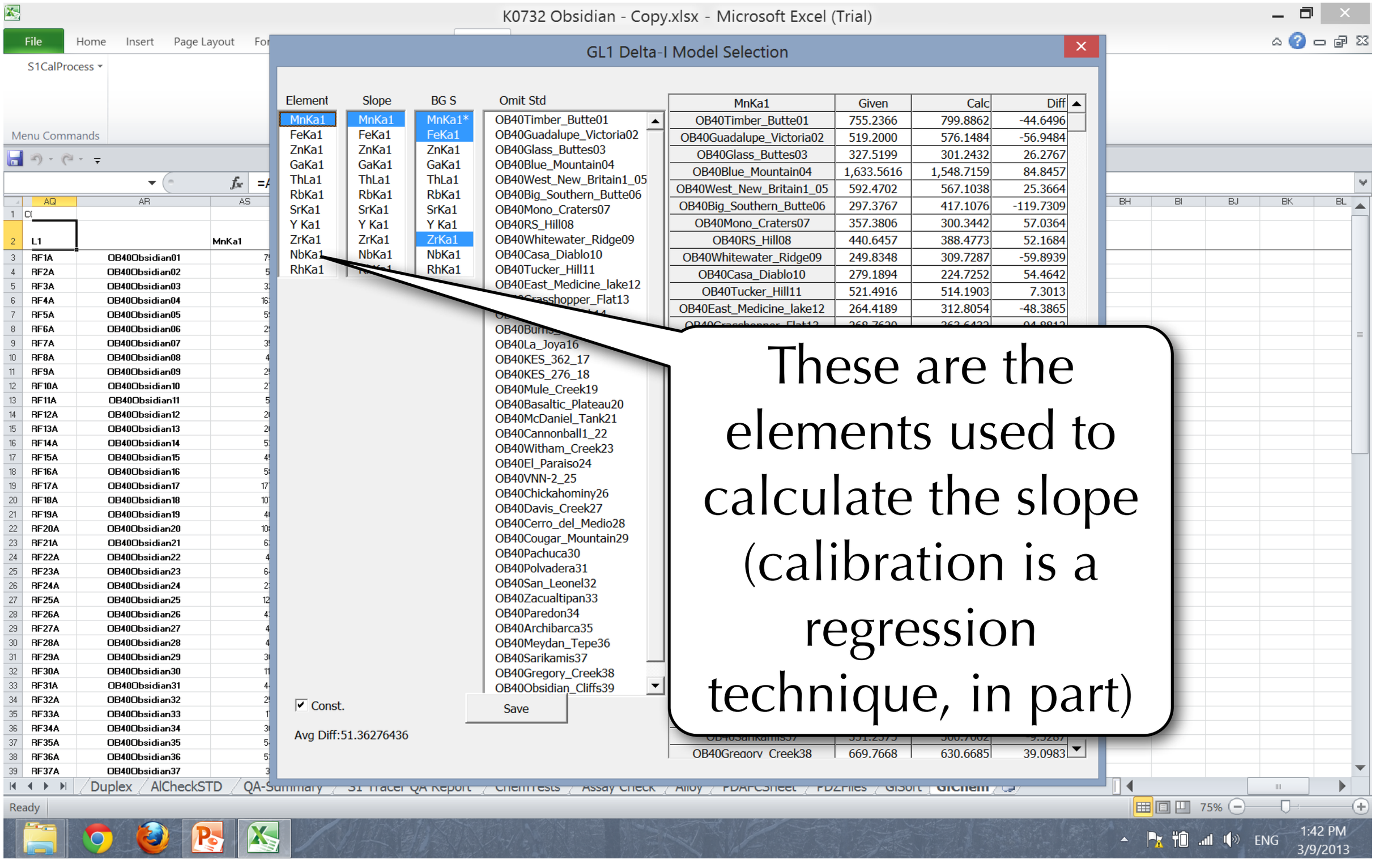


It is important to keep in mind that the Niobium K_{beta} peak falls within 18.5 to 19.0 keV in that event

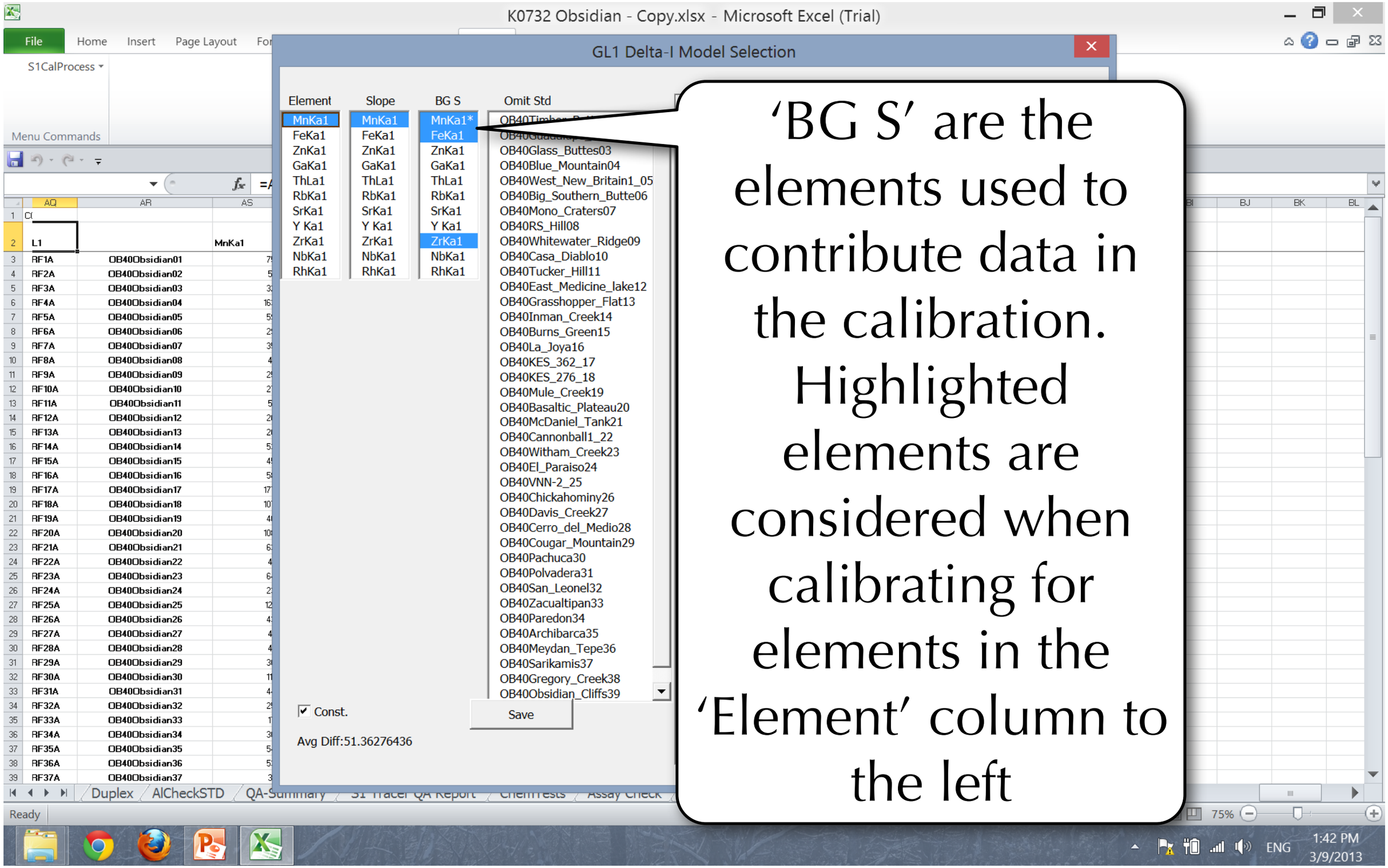
Developing a Calibration



Developing a Calibration

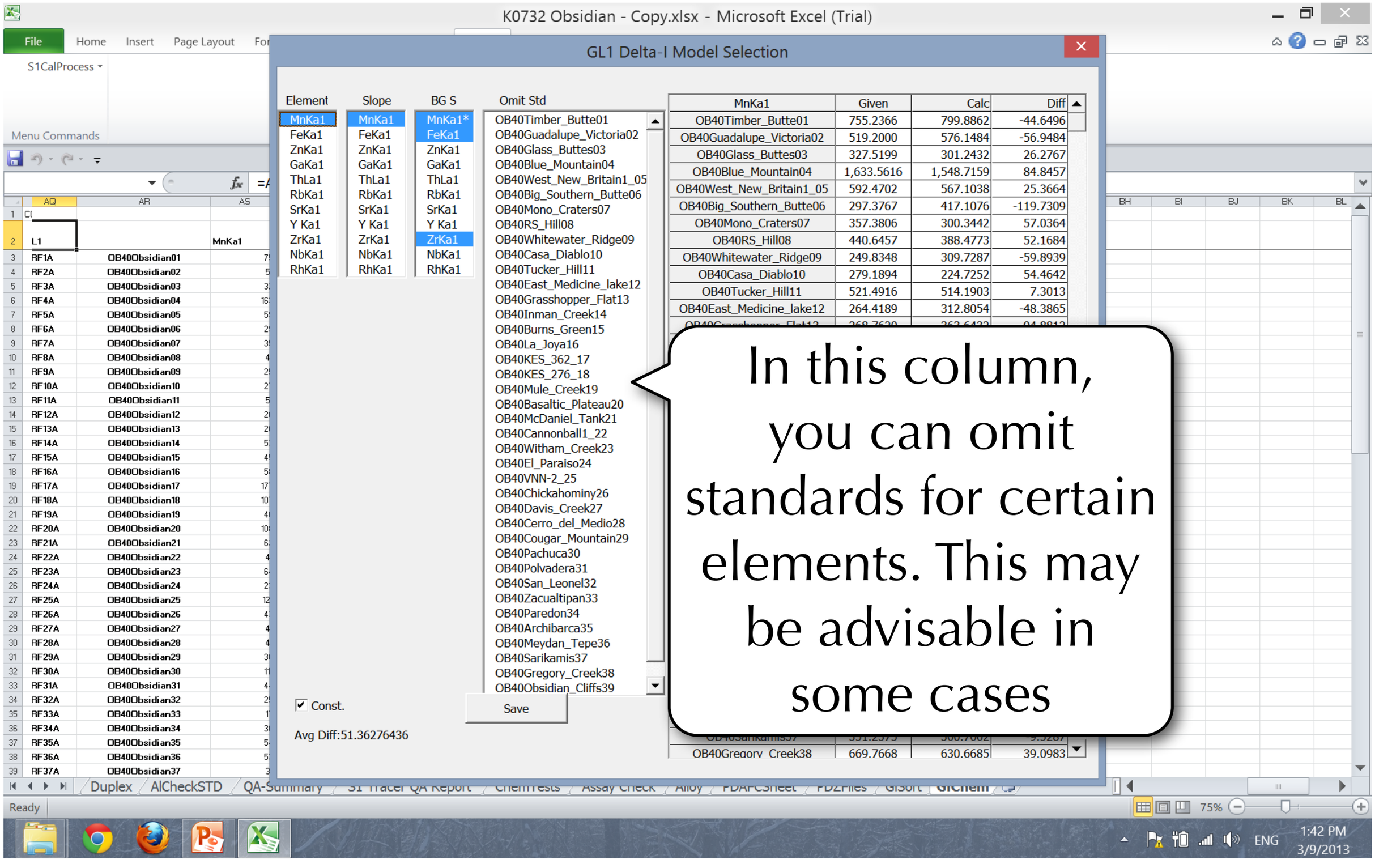


Developing a Calibration



'BG S' are the elements used to contribute data in the calibration. Highlighted elements are considered when calibrating for elements in the 'Element' column to the left

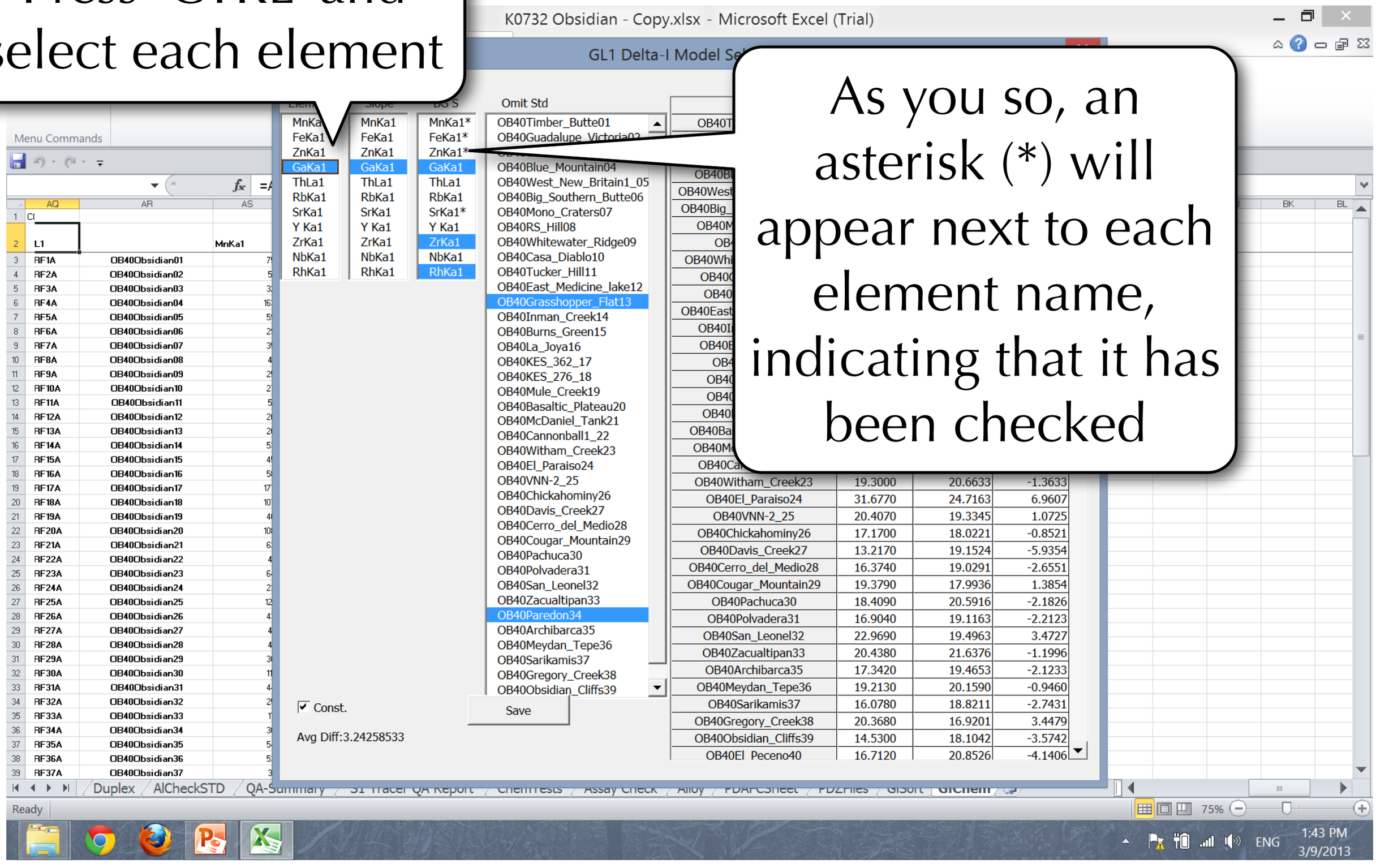
Developing a Calibration



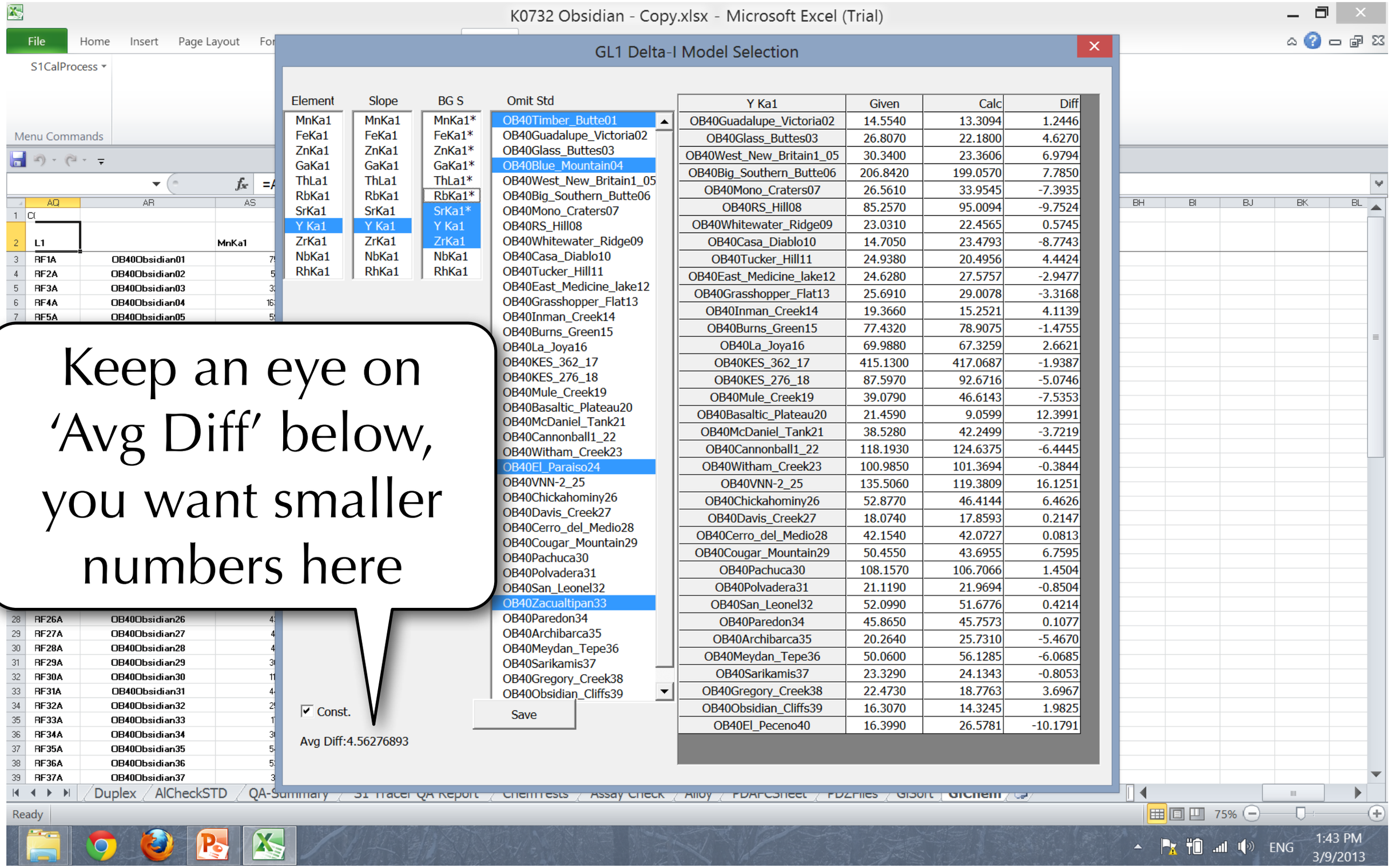
Developing a Calibration

Press ‘CTRL’ and select each element

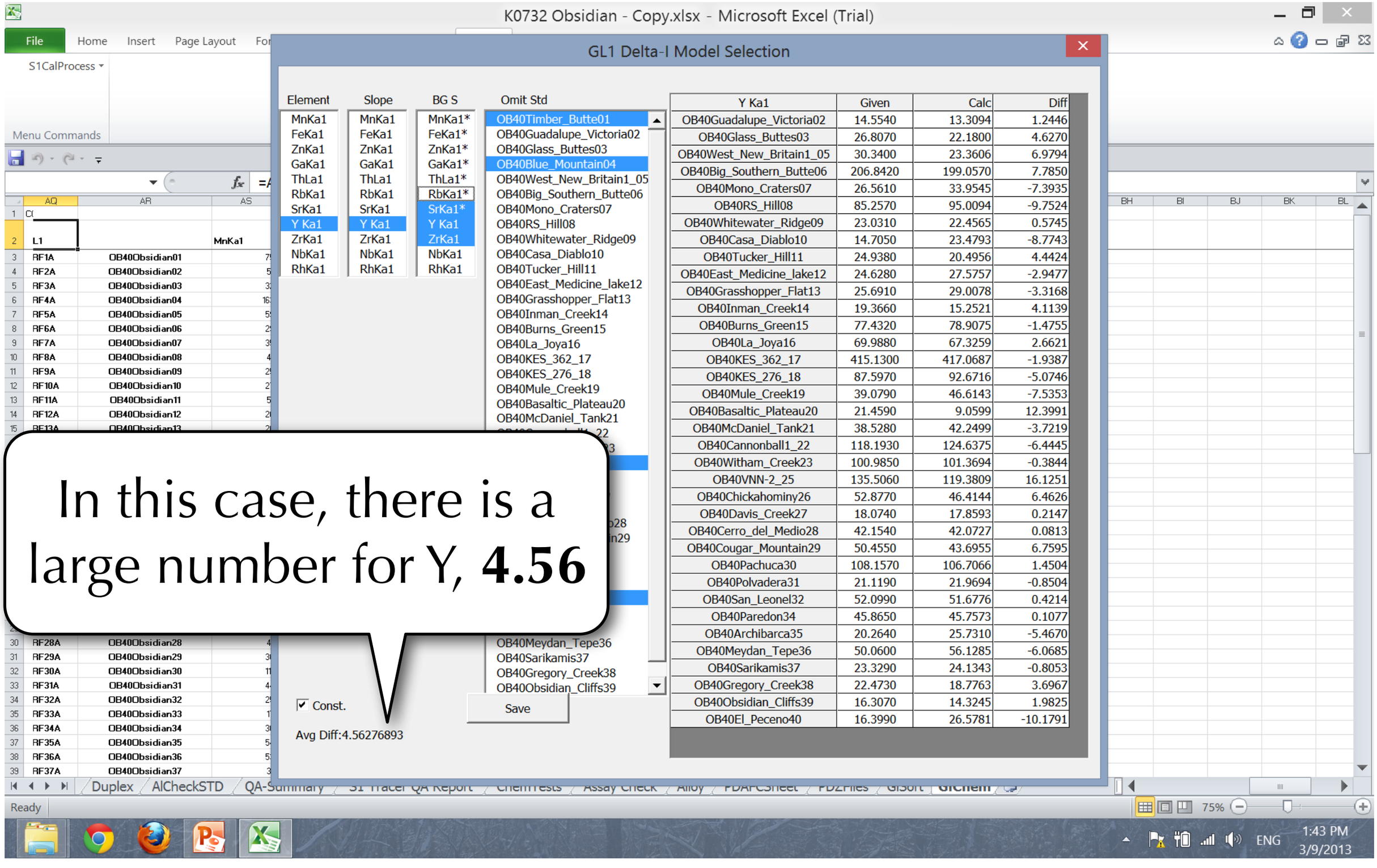
As you so, an asterisk (*) will appear next to each element name, indicating that it has been checked



Developing a Calibration

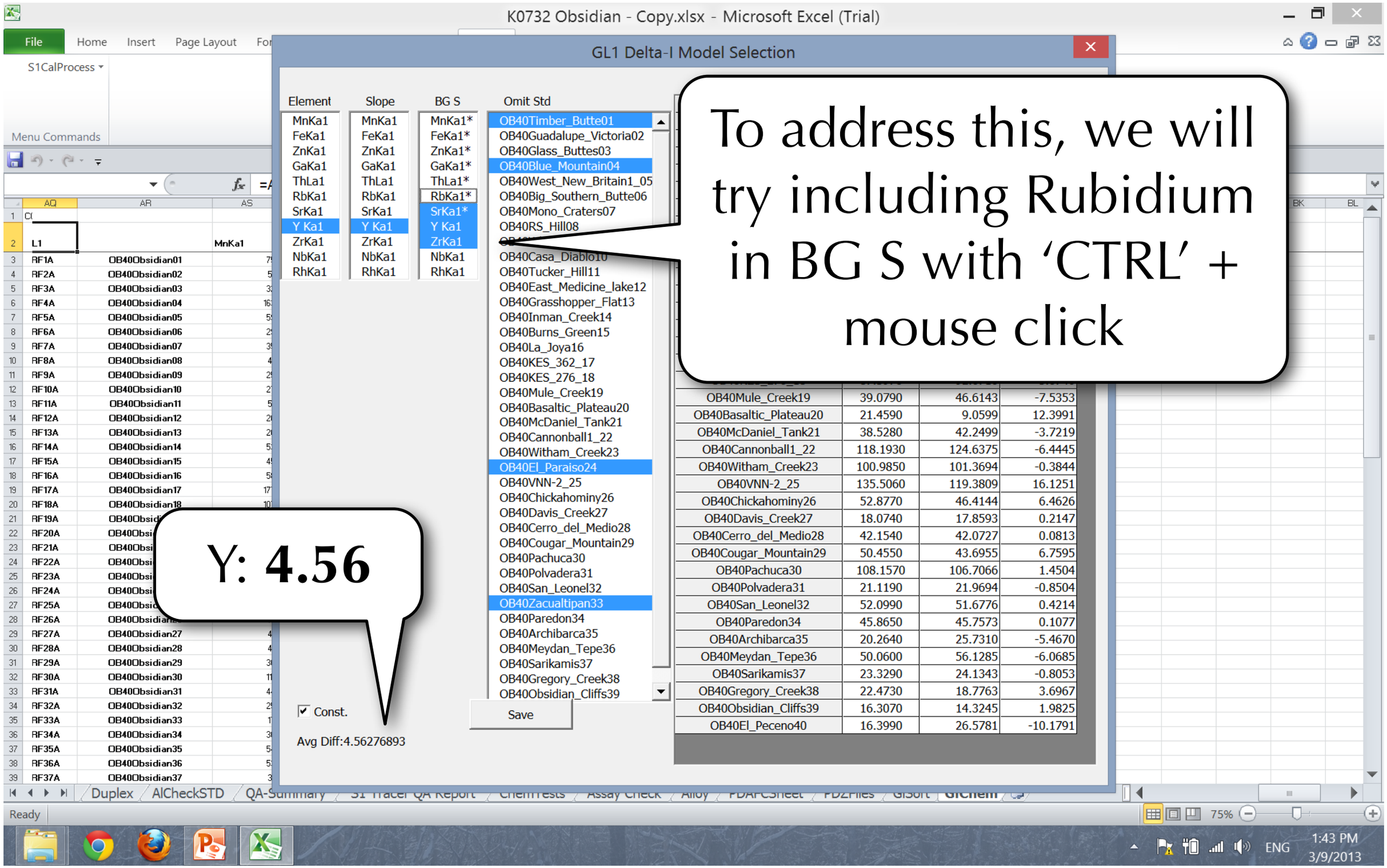


Developing a Calibration



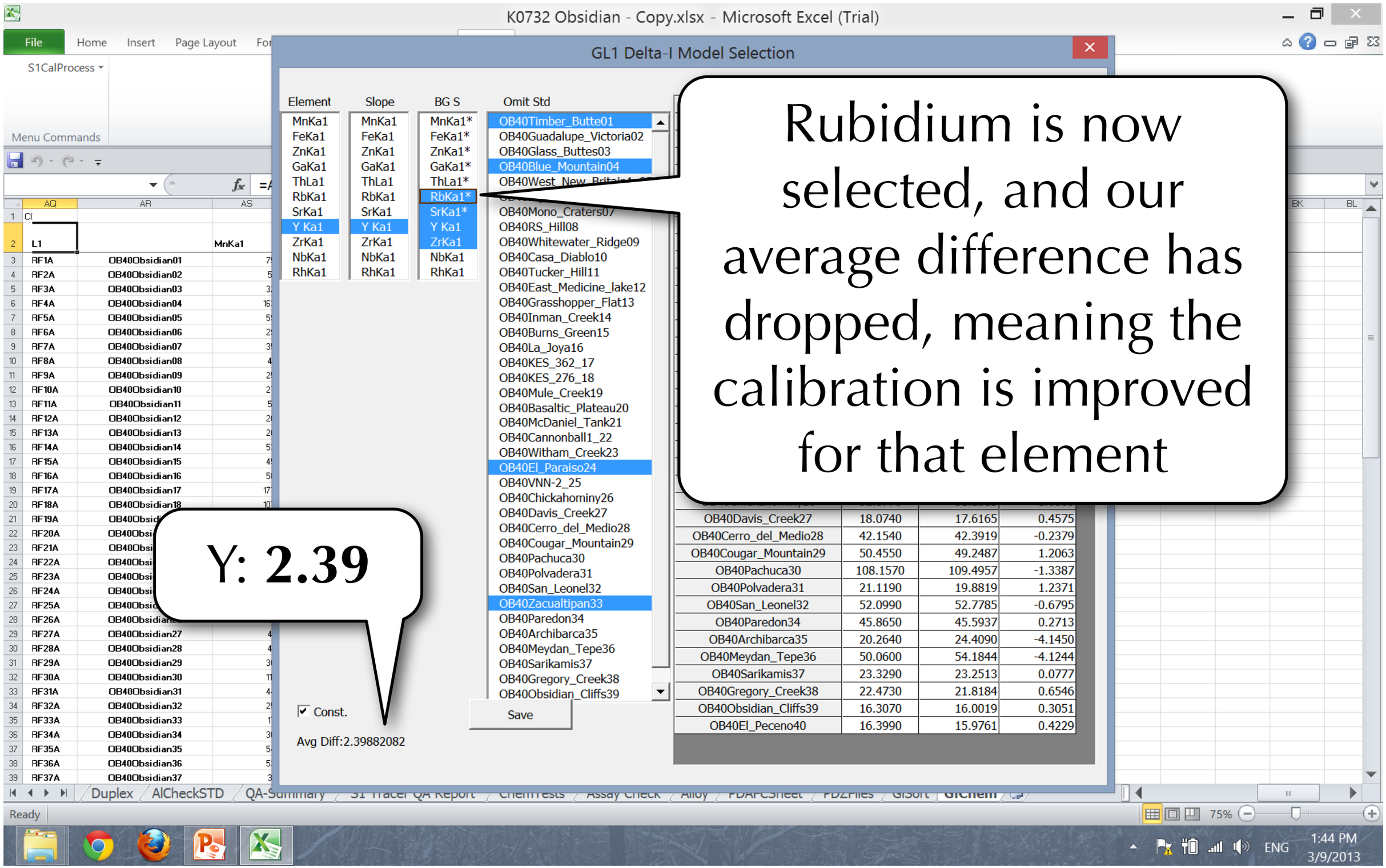
In this case, there is a large number for Y, **4.56**

Developing a Calibration

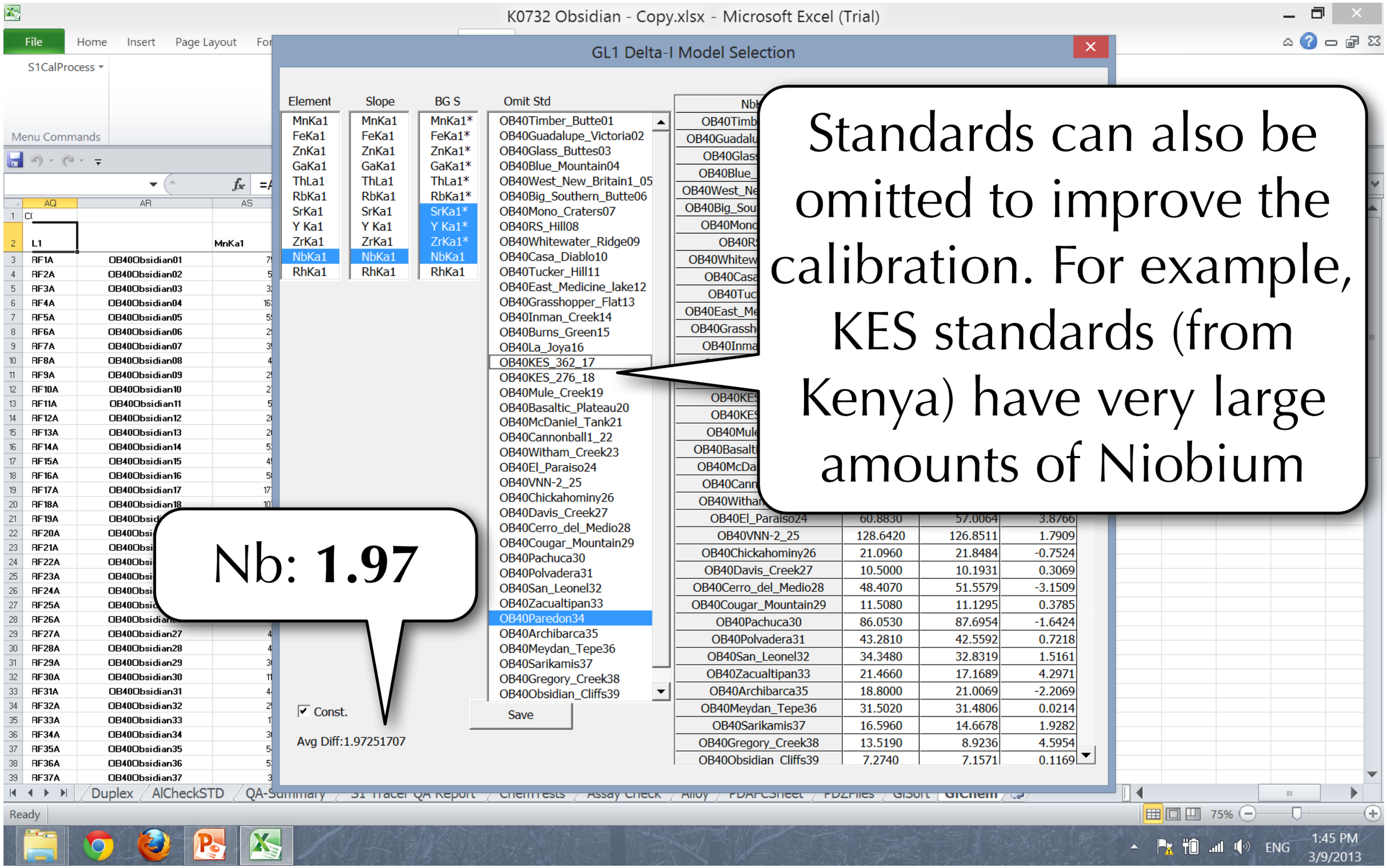


OB40Mule_Creek19	39.0790	46.6143	-7.5353
OB40Basaltic_Plateau20	21.4590	9.0599	12.3991
OB40McDaniel_Tank21	38.5280	42.2499	-3.7219
OB40Cannonball1_22	118.1930	124.6375	-6.4445
OB40Witham_Creek23	100.9850	101.3694	-0.3844
OB40VNN-2_25	135.5060	119.3809	16.1251
OB40Chickahominy26	52.8770	46.4144	6.4626
OB40Davis_Creek27	18.0740	17.8593	0.2147
OB40Cerro_del_Medio28	42.1540	42.0727	0.0813
OB40Cougar_Mountain29	50.4550	43.6955	6.7595
OB40Pachuca30	108.1570	106.7066	1.4504
OB40Polvadera31	21.1190	21.9694	-0.8504
OB40San_Leonel32	52.0990	51.6776	0.4214
OB40Paredon34	45.8650	45.7573	0.1077
OB40Archibarca35	20.2640	25.7310	-5.4670
OB40Meydan_Tepe36	50.0600	56.1285	-6.0685
OB40Sarikamis37	23.3290	24.1343	-0.8053
OB40Gregory_Creek38	22.4730	18.7763	3.6967
OB40Obsidian_Cliffs39	16.3070	14.3245	1.9825
OB40El_Peceno40	16.3990	26.5781	-10.1791

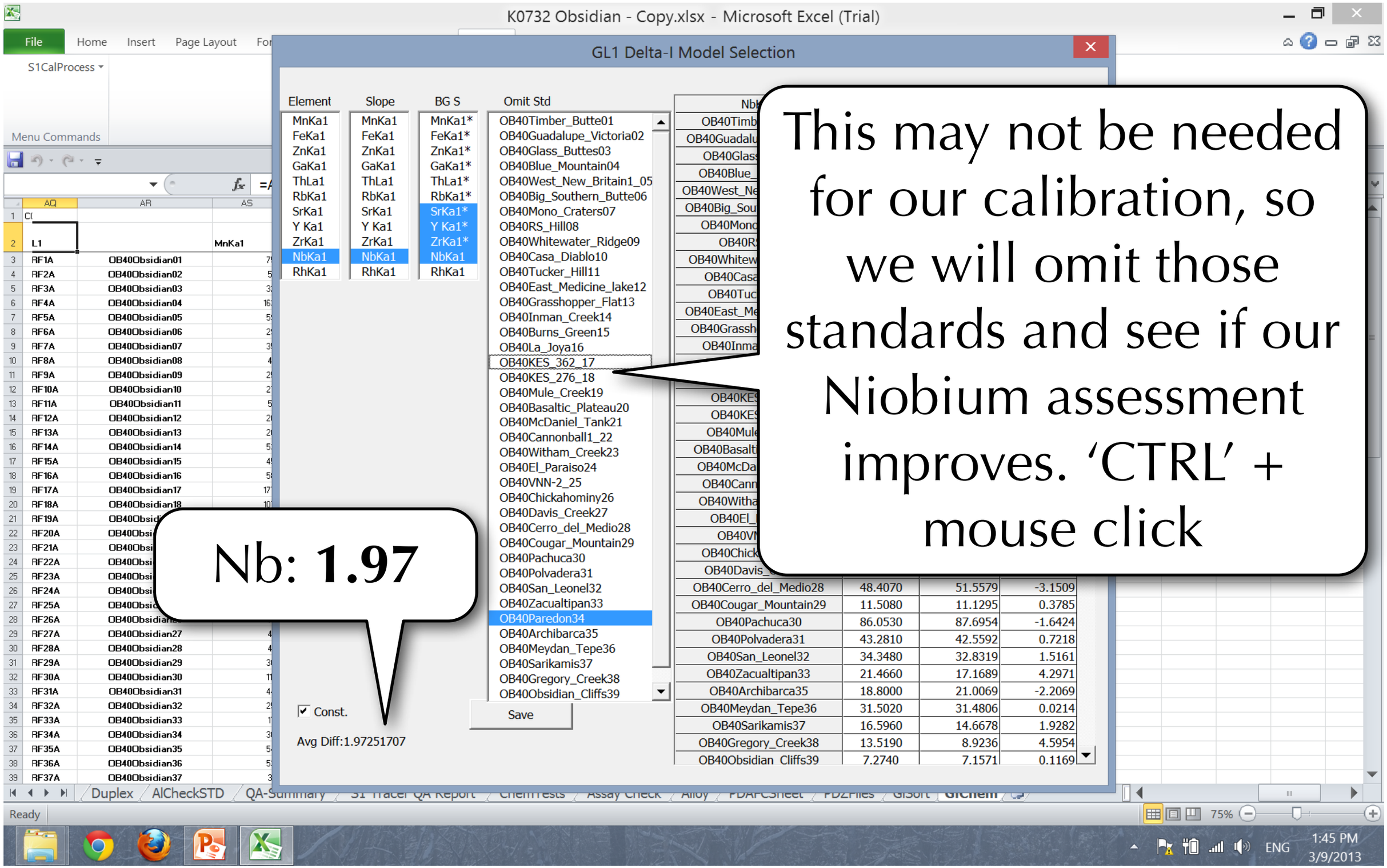
Developing a Calibration



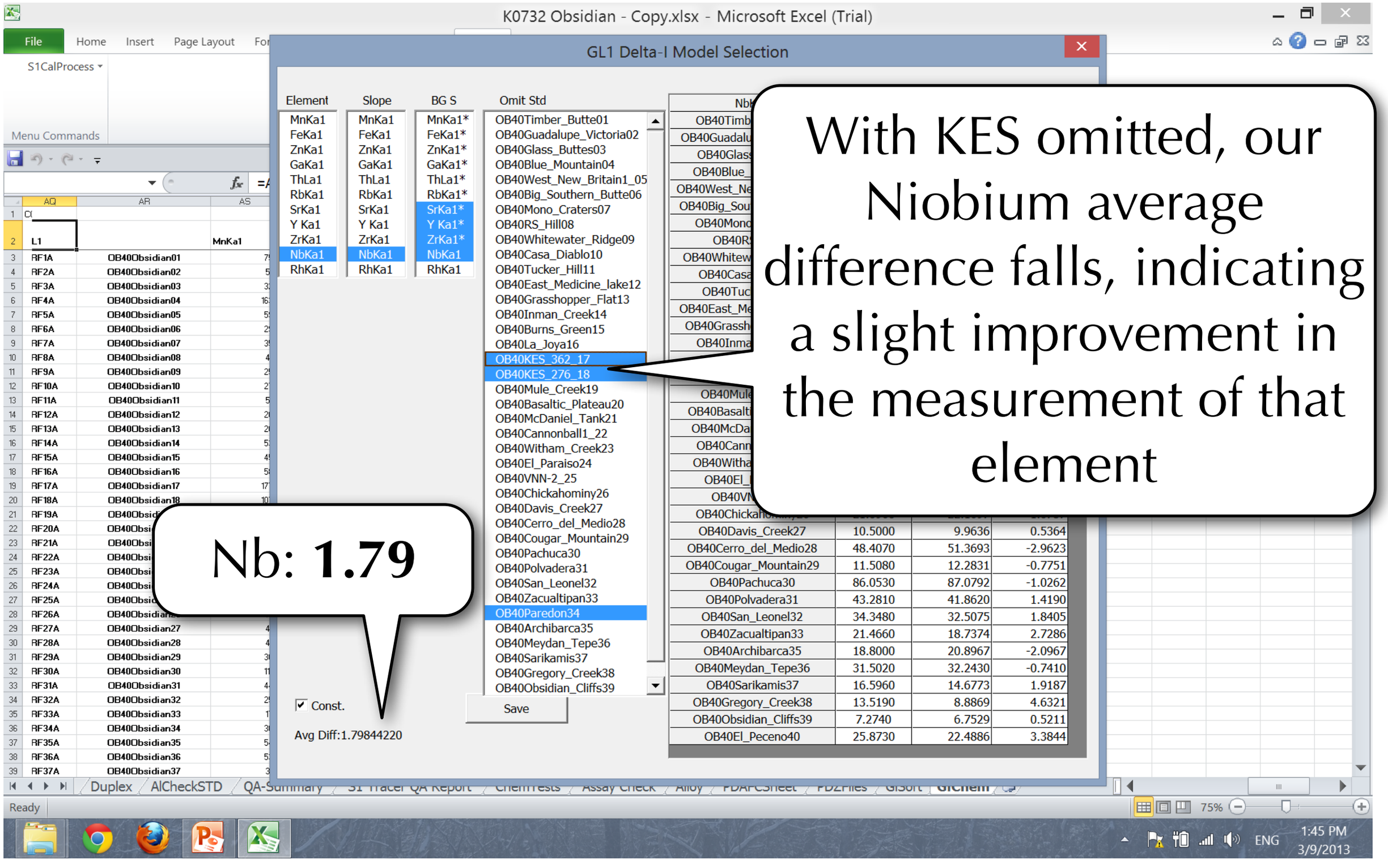
Developing a Calibration



Developing a Calibration



Developing a Calibration

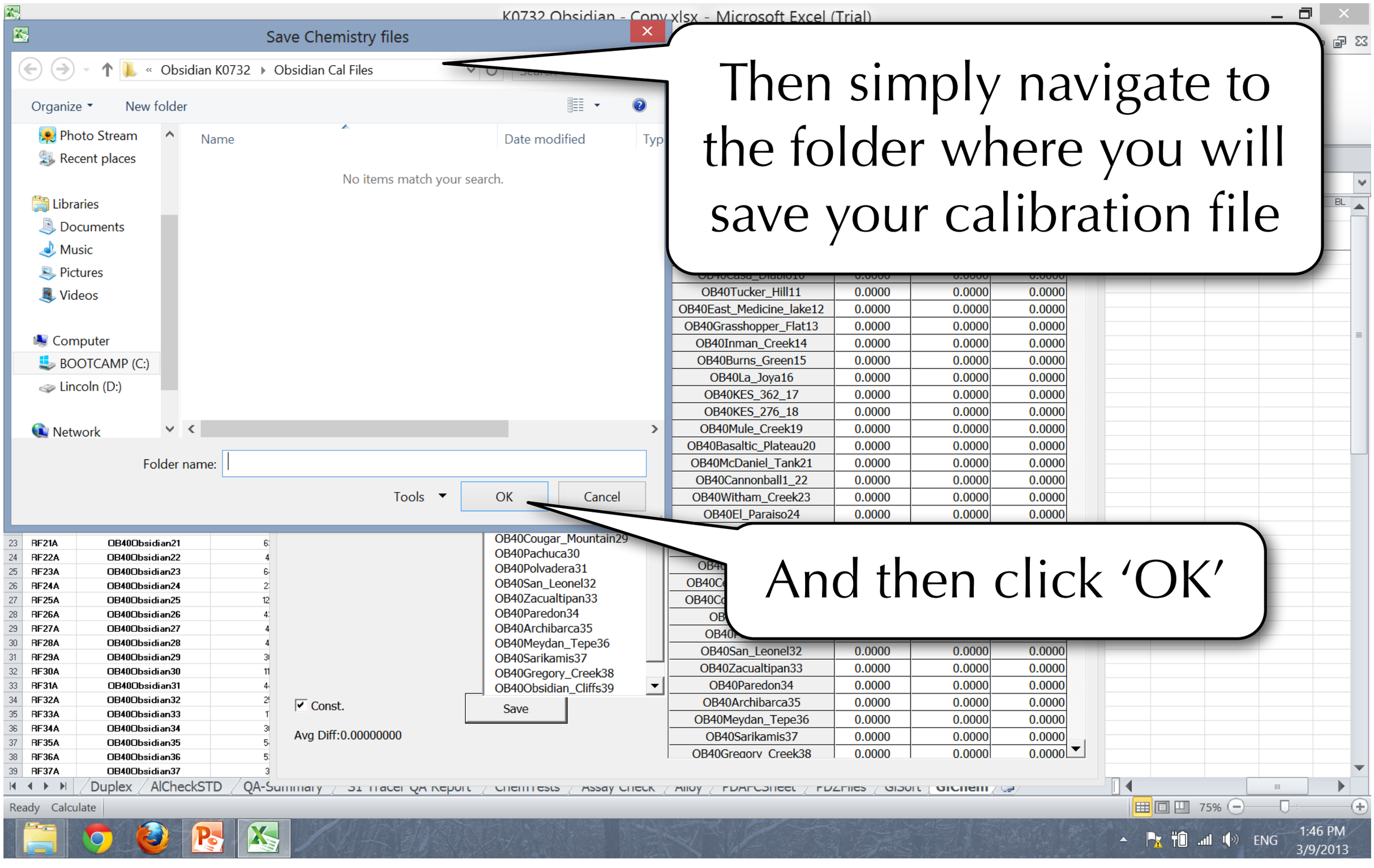


Developing a Calibration

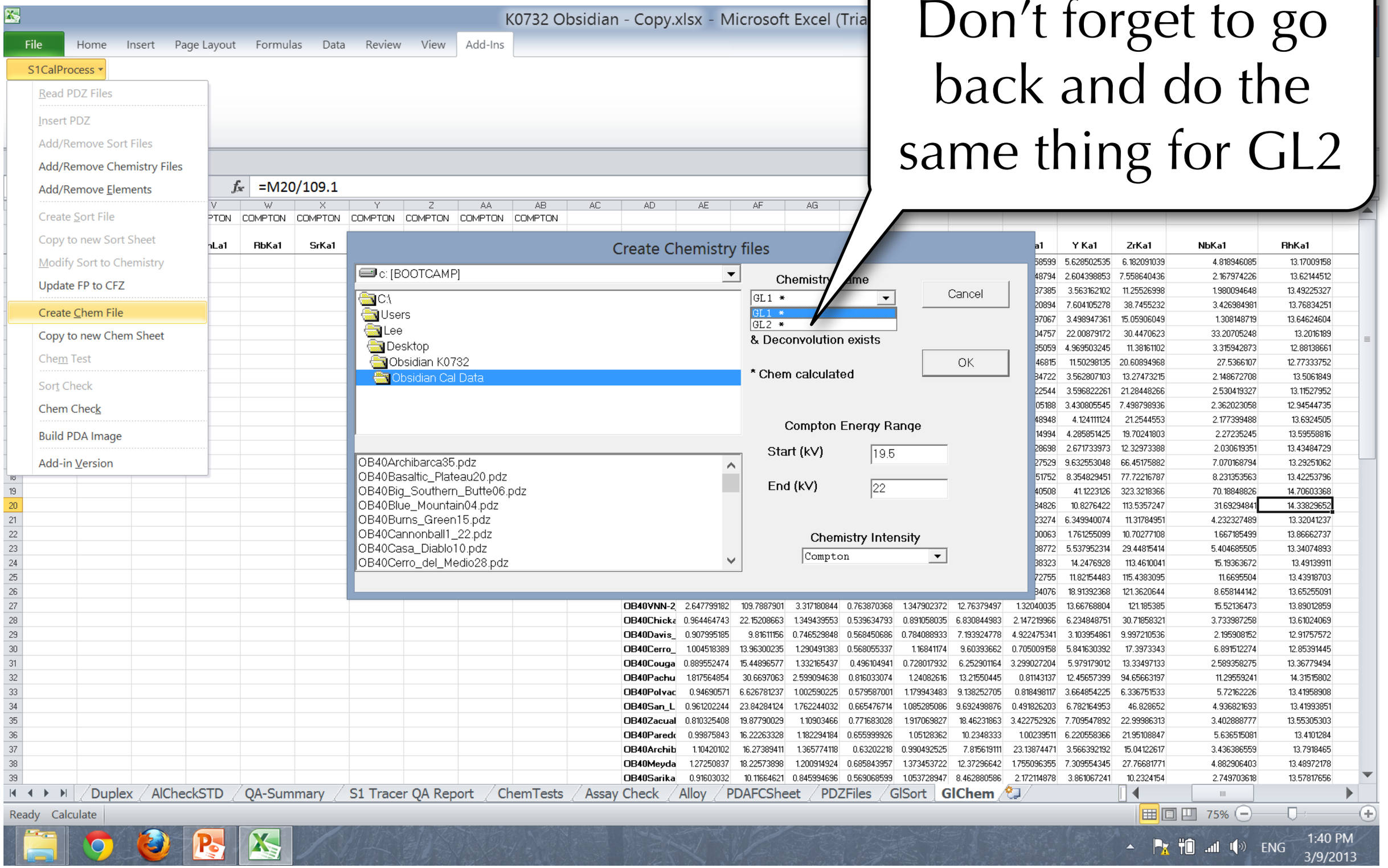
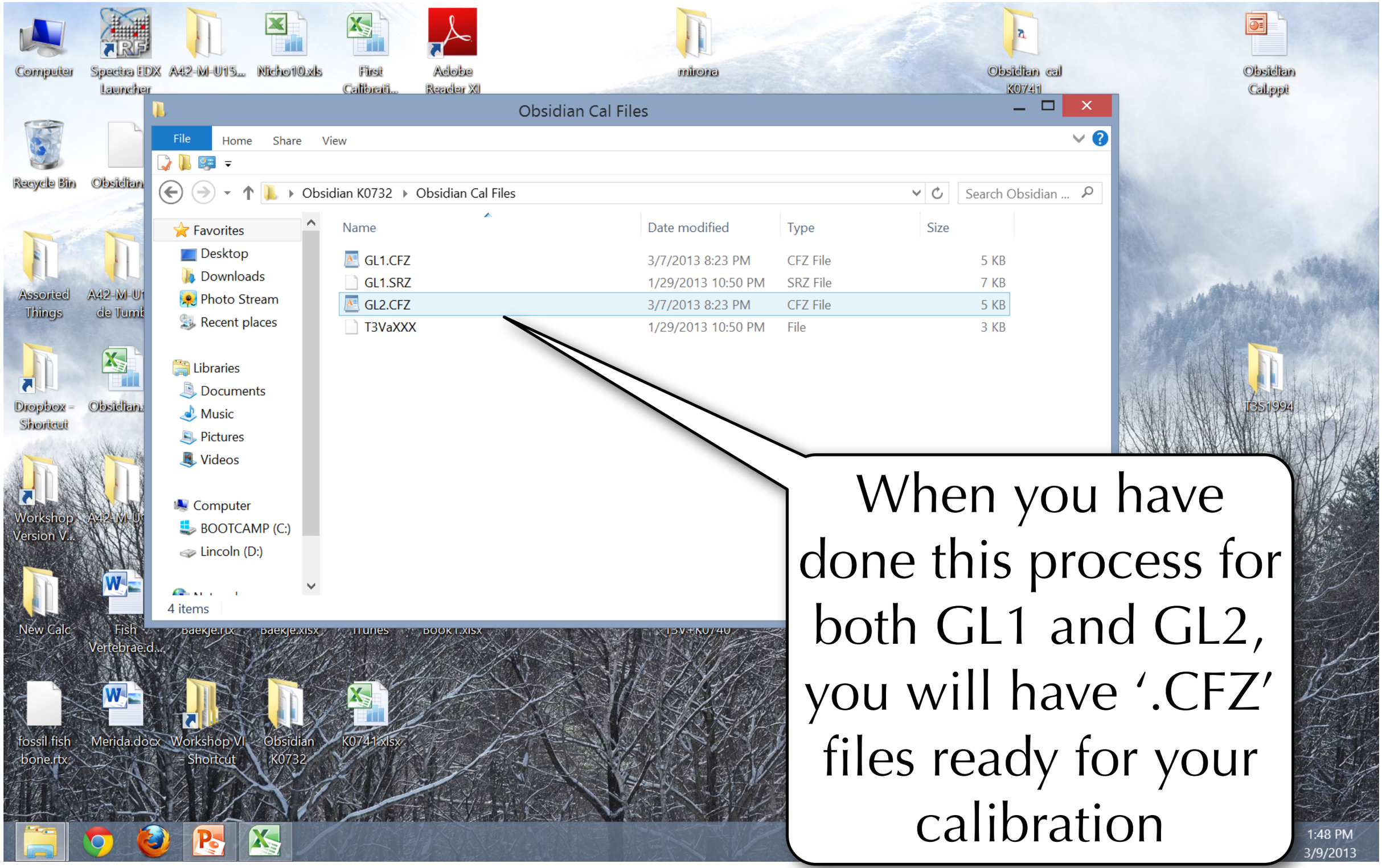
When every element listed in ‘BG S’ has an asterisk (*) next to it, then you are able to proceed to create your calibration file

Click ‘Save’

Developing a Calibration



Developing a Calibration



Developing a Calibration