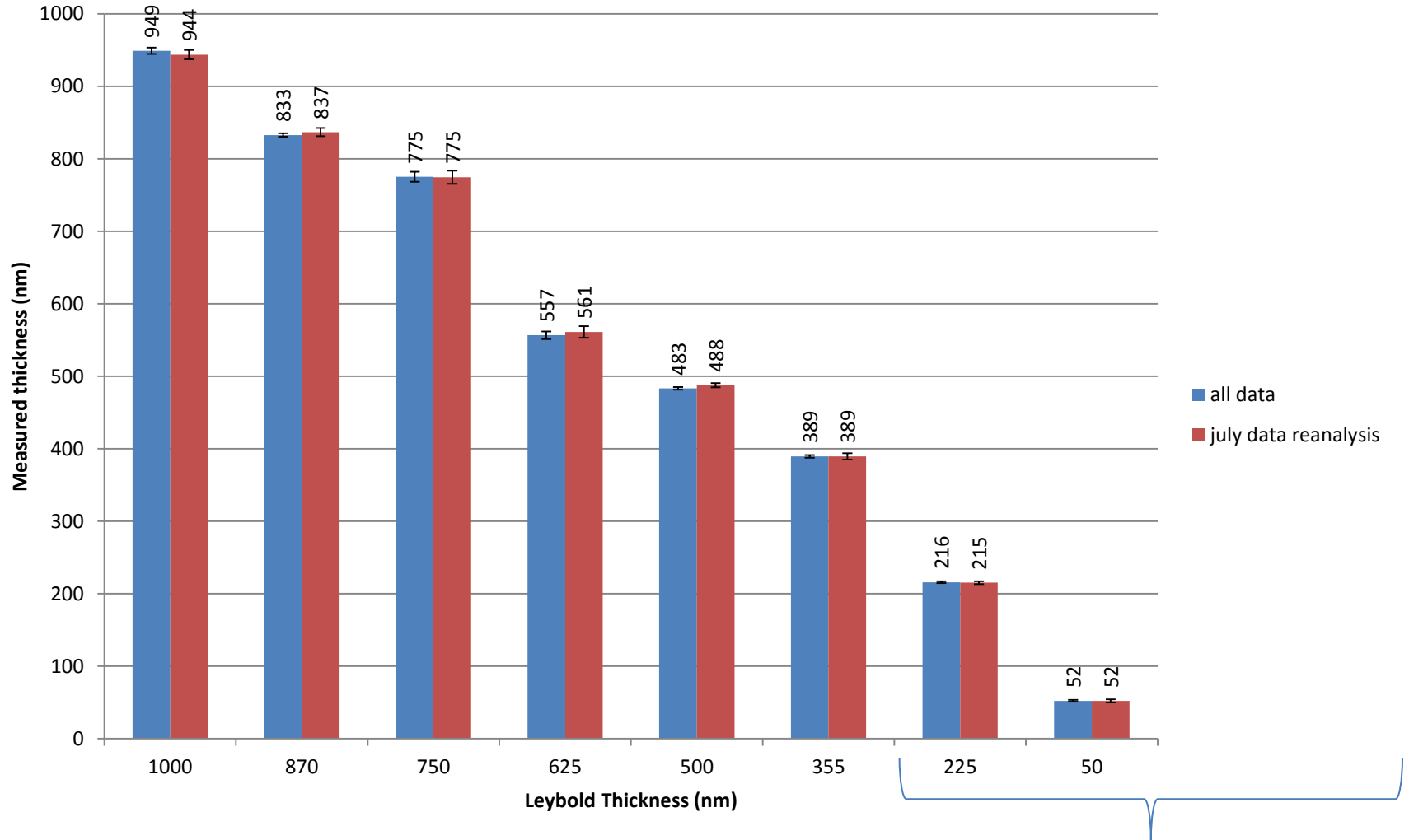


# Foil thickness measurements more uncertainties captured

12August2015

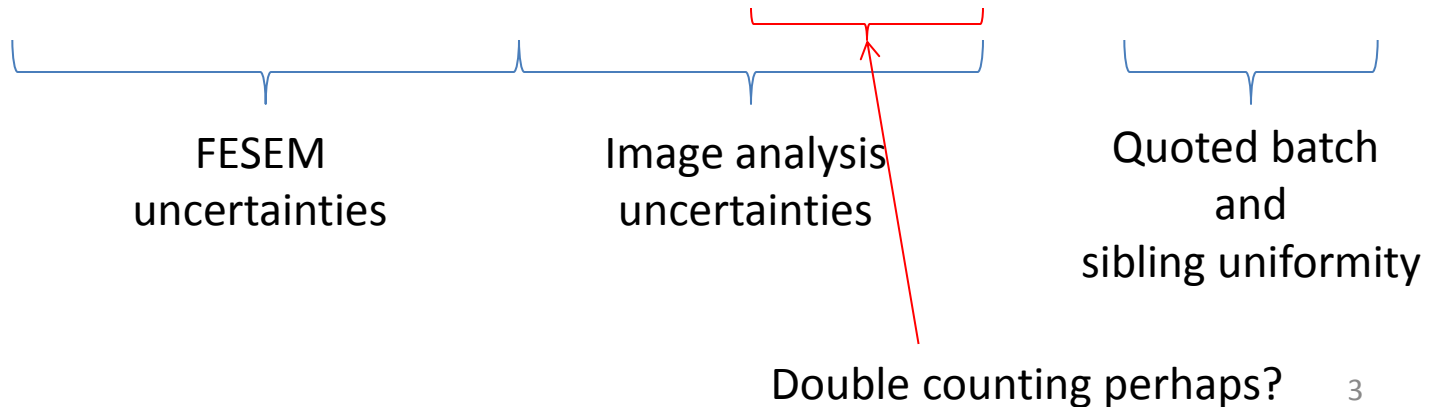
## Comparison between full data and abbreviated July data set, statistical errors only from measurement



# Error contributions

All measurements in nm

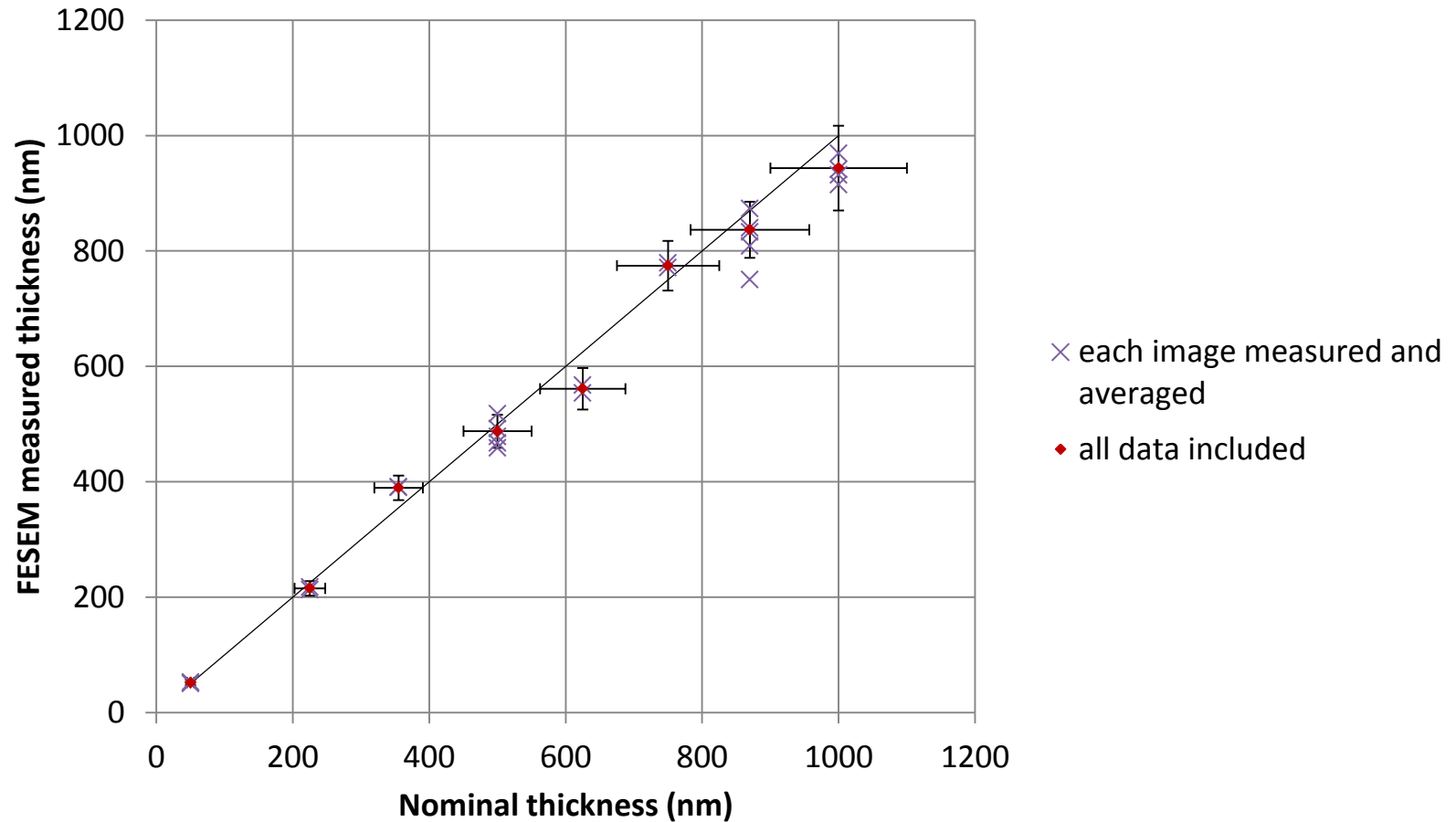
foil	Lebow (nm)	Meas (nm)	1a: FE-SEM res.	1b: tilt 0.4% mea thick	1c: working distance due to tilt	1d: working distance or focus – 0.1 mm/ WD	2a: pixel res.	2b: re-analy. same image	2c: diff btwn similar images	2d: varia. btwn diff configs	3: ??? stretch, foil mnt issues	4a: lebow foil unifor m 2%	4b: Lebow batch uniform. 5%
5385	1000	943.7	1.2	3.7	9.2	8.5	20	31.0	29.0	6.5		20.0	50.0
3057	870	836.8	1.2	3.3	8.3	8.3	8.0	13.8	7.1	5.6		17.4	43.5
5134	750	774.6	1.2	3.1	7.7	6.9	10.0	13.2	9.1	9.1		15.0	37.5
7028	625	561.2	1.2	2.2	5.6	4.6	8.0	12.6	8.0	8.0		12.5	31.3
5275	500	487.6	1.2	2.0	4.9	4.3	8.0	8.4	3.4	2.9		10.0	25.0
5613	355	389.4	1.2	1.6	3.9	3.4	8.0	6.6	4.5	4.5		7.1	17.8
7029	225	215.2	1.2	0.9	2.2	1.9	2.6	2.7	1.9	1.9		4.5	11.3
6809	50	52.0	1.2	0.2	0.5	0.4	2.6	3.2	2.3	2.3		1.0	2.5



# Combining uncertainties

Target ladder position	foil	Meas (nm)	FESEM (all from section 1)	image anayl (all from section 2)	Lebow (from section 4: larger only)	Total uncertainty (nm)
15	5385	<b>943.7</b>	13.1	58.7	50.0	<b>78.2</b>
3	3057	<b>836.8</b>	12.3	18.3	43.5	<b>48.8</b>
4	5134	<b>774.6</b>	10.9	21.0	37.5	<b>44.3</b>
2	7028	<b>561.2</b>	7.7	18.7	31.3	<b>37.2</b>
5	5275	<b>487.6</b>	6.9	12.5	25.0	<b>28.8</b>
8, 14	5613	<b>389.4</b>	5.5	12.1	17.8	<b>22.2</b>
1	7029	<b>215.2</b>	3.2	4.6	11.3	<b>12.6</b>
13	6809	<b>52.0</b>	1.4	5.3	2.5	<b>6.0</b>

# Incorporating more sources of uncertainty



# Incorporating more sources of uncertainty

