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Subject: validation of CAS wavelength thermal correction using HgNe penlamps
Date: Tuesday, November 19, 2019 1:25:00 PM
Attachments: [image002.png](#)
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Hi, There is a data set where I measured the HgNe penlamp in RSL on Feb 27 and Mar 16 in 2018, and in FASCAL II on Feb 28. FASCAL is maintained cold and the ambient temperature during the pen lamp scans 17.5 to 18.4 degC. I estimate the RSL temperature to be 23.2 deg C.

I worked a on the peak fit code I had developed for the thermal analysis and revised it so it automatically finds peaks above a certain level. This was necessary because I needed to compare uncorrected and corrected data and the corrected data are not on the same wavelength grid as the native CAS, so the pixel finding algorithm was no longer valid. As a result, the actual peaks found in each set may differ.

I also looked at one HgA scan and it gave consistent results within the $k=2$ uncertainty of the Gaussian peak fitting method.

Here are the HgNe plots. Note the Feb 28 day is consistently corrected by a larger amount as expected (should be $\sim +0.1\text{nm}$ according to the thermal analysis work)

Green diamonds are corrected and blue circles are uncorrected. Vertical lines are 95% for the peak wavelength. I only show results where the same line was found in uncorrected and corrected scans (some lines are weak), and the peak was found on 28 Feb.

Enjoy, Carol









