
Subject: Re: wavelength calibration

Posted by [rogass](#) on Thu, 03 Nov 2011 20:05:26 GMT

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On 1 Nov., 15:08, Gray <grayliketheco...@gmail.com> wrote:

> Hello IDL gurus,

>

> I have a night-sky emission spectrum (from my data), and a list of
> irregularly-gridded night-sky lines (from the literature). I'm trying
> to perform a wavelength calibration of my data; I have a quite poor
> zeroth-order solution already.

>

> My best idea so far was to perform a cross-correlation of the two data
> sets to find the wavelength shift and then do some least-squares
> fitting to find a better solution. However, I'm not sure how to
> perform the cross-correlation.

>

> My data is in the form:

> (a) n-element array of spectrum data points

> (b) n-element array of zeroth-order wavelengths

> (c) m-element array of night-sky emission line wavelengths (irregular)

> (d) m-element array of night-sky emission line strengths

>

> So my questions are:

> 1) How do I compute the cross-correlation between these two sets of
> data?

> 2) Is this the best way to go about it?

>

> Thank you as always...

> --Gray

Hi,

2) it depends on :)

Just look for smile correction, e.g.:

with known endmember:

Guanter, L., Segl, K., Sang, B., Alonso, L., Kaufmann, H., Moreno, J.
(2009): Scene-based

spectral calibration assessment of high spectral resolution imaging
spectrometers. - Optics

Express, 17, 14, 11594-11606, DOI: 10.1364/OE.17.011594

with atmospheric absorptions:

Richter, Rudolf und Schläpfer, Daniel und Müller, Andreas (2011)
Operational atmospheric correction for imaging spectrometers

accounting for the smile effect.

IEEE Transactions on Geoscience and Remote Sensing, 49 (5), Seiten
1772-1780.

IEEE. DOI: 10.1109/TGRS.2010.2089799.

It's pretty simple to implement. Just use SHARP features.

Cheers

CR
