USGS residual abs. Method.

All in all a very good and precise manuscript, so I have rather few comments:

Corrections:
Page 3, line 26: fifth I-position must be North Down, same as 4. position, only slightly tilted.
Page 10, line 25: year must be mid-2015, not 2012.

Discussion:
Page 5:
How much does the inclination result improve using equation 7 to 11 instead of using only equation 6?
Using the iteration process you end up with an error of about 0.0001 degree, but what is the error if you only uses equation 6?

Page 7:
Again, how much better is it to use the exact formula (equation 20) for the declination instead of the small angle approximation?
My point is again that it would be nice to get a feeling, if it can be worth to enhance the absolute calculations on a certain observatory. Will it improve the results on all locations or mostly at high lattitude ?

Page 6, line14.
Calculation the scale value of the DIM: Can you explain why you move the theodolite 10.0 minuts, 0.16667 degrees or 0.2 gon between 4. and 5. I reading? I know that it is due to the reading on the telescope, but an explanation could be nice to have.

Page 9:
Diagnostic fluxgate parameters:
The two misalignment angles that can be calculated are the misalignment of the fluxgate sensor in horizontal and vertical plane, and it is my opinion that they should be called horizontal misalignment and vertical misalignment.
The two sensor offsets SO_D and SO_I calculated from D and I readings should end up with the same value, so they can be compared for each set of measurements. I would prefer to call SO for 'sensor offset' even the offset are a combination of offset in sensor, in electronics and in cable. But using the same setup everytime (same sensor, cable and electronics), it should be a rather constant value.

The mentioned DIM scale value on page 6 is a 6. parameter that is good to follow.
Also the angles of the declination mark is good to follow over time to see if the theodolite pillar is rotating or the horizontal scale in the teodolite is loose.

I agree that it is essential to follow these parameters, and I would like to see a plot of at least some of them in the article.

4.0 Discussion and conclusion, page 11 and 12:
One of the advantages of using the residual method is, as mentioned, that the observer can be several meters away from the theodolite and will not influence the magnetic field as much, if he is magnetic. This is a very important 'feature' for us using glasses.

But another important improvement using the residual method, is the timing. It is easier to read the residual value at a certain time, than try to keep residual at zero and read the time.