

Atmos. Meas. Tech. Discuss., 4, C1753–C1755, 2011

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**AMTD**

4, C1753–C1755, 2011

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## ***Interactive comment on “Volcanic SO<sub>2</sub> and SiF<sub>4</sub> visualization and their ratio monitored using 2-D thermal emission spectroscopy” by W. Stremme et al.***

**W. Stremme et al.**

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# Two typeset errors: The red text is corrected

11 October 2011

## 1 Date of measurements:

The measurements on 16/17 November have been taken in the year **2008**, as it is stated in the abstract.

This should be corrected in the introduction line 27 page 4: "16 to 17 November **2009**" should be changed to "**16 to 17 November 2008**"

## 2 Typeset error in equation 5

The formula (eq.5, line 18 page 12) has an error as it is an incorrect mixing between a compact writing using quadratic norms as in Steck (2002):

$$\| y - f(x) \|_{\mathbf{S}_{\text{inv}}}^2 + \| x - x_a \|_{\mathbf{R}}^2$$

and explicit writing as :

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$$(y - f(x))^T \cdot \mathbf{Seinv} \cdot (y - f(x)) + (x - x_a)^T \cdot \mathbf{R} \cdot (x - x_a)$$

Therefore the equation 5 should be written either:

$$P F(\vec{V}) = \left\| \frac{dcl}{dt} - K \cdot \vec{V} \right\|_{\mathbf{Seinv}}^2 + \lambda \cdot \left\| (\vec{V} - \vec{V}_a) \right\|_{\mathbf{R}}^2$$

or better explicitly:

$$P F(\vec{V}) = \left( \frac{dcl}{dt} - K \cdot \vec{V} \right)^T \cdot \mathbf{Seinv} \cdot \left( \frac{dcl}{dt} - K \cdot \vec{V} \right) + \lambda \cdot (\vec{V} - \vec{V}_a)^T \cdot \mathbf{R} \cdot (\vec{V} - \vec{V}_a)$$

(In this retrieval the matrix ( $\mathbf{Seinv}$ ) is diagonal and the correlation coefficient of the slant  $\text{SO}_2$  columns (reference  $\text{SO}_2$  spectrum, measured spectrum - baseline) are used for the weighting of the measurements for the wind field retrieval.)

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