

Suggested technical corrections from this editor:

The full
names have
been
provided

Abstract: According to the ACP manuscript preparation guidelines, abbreviations should not be included without explanations. Please consider providing the full names of MODIS and CALIOP in the abstract although these two satellite sensors might have been well-known in the atmospheric science community.

Page 4, the last sentence in Para. 3: “*For its part, the release rate of sulfur dioxide integrated over the duration of the eruption determines the total mass of sulfur gaseous precursor emitted into the atmosphere*”.

It is not clear to me what you mean by “*sulfur gaseous precursor*”, gaseous precursors of sulfate aerosols, or SO₂ itself, or SO₂ plus other gases like H₂S?

It is indeed unclear.
This has been changed to “*SO₂ gaseous precursor*”

Page 6, the first sentence of Para. 4: “*Furthermore, the consistency of the predicted altitudes is compared against several independent sources of information*”.

It seems to me that “*compared against*” is not a suitable expression, and perhaps can be “*evaluated by*” or “*investigated by*”, or other more suitable words.

changed to
“*tested against*”

Page 14, the second paragraph: “*The SO₂ cloud covers now more than 1200 km, only 12h since the previous observations that indicated a much more spatially concentrated SO₂ cloud (Fig. 2b left). The model is able to reproduce the SO₂ cloud elongation as well as the gradients of SO₂ load within the plume (Fig. 2c and d right). Nevertheless, we observe a discrepancy between observations and model at these dates*”.

It might be better to use “12h after” (instead of “*12h since*”), “find a discrepancy” (instead of “*observe a discrepancy*”) and “on these days” (instead of “*at these dates*”)?

Done.

Page 17, the last paragraph: “*Nevertheless, sulfate aerosols, which are produced by conversion of the gaseous SO₂ precursor during its transit in the atmosphere,*”

Should “*the gaseous precursor SO₂*” be used?

Changed to “*SO₂ gaseous precursor*”