Supplement of

An advanced method of contributing emissions to short-lived chemical species (OH and HO$_2$): The TAGGING 1.1 submodel based on the Modular Earth Submodel System (MESSy 2.53)

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This document provides additional material to the article: *Rieger et al., An advanced method of contributing emissions to short-lived chemical species (OH and HO$_2$): The TAGGING 1.1 submodel based on the Modular Earth Submodel System (MESSy 2.53), 2017*. The following figures compare the contributions of the tagging method V1.0 and the advanced tagging method V1.1 for the ten source categories: emissions from anthropogenic non-traffic (e.g. industry and households), road traffic, ship traffic, air traffic, biogenic sources, biomass burning, lightning, methane and nitrous oxide decomposition and stratospheric ozone production.
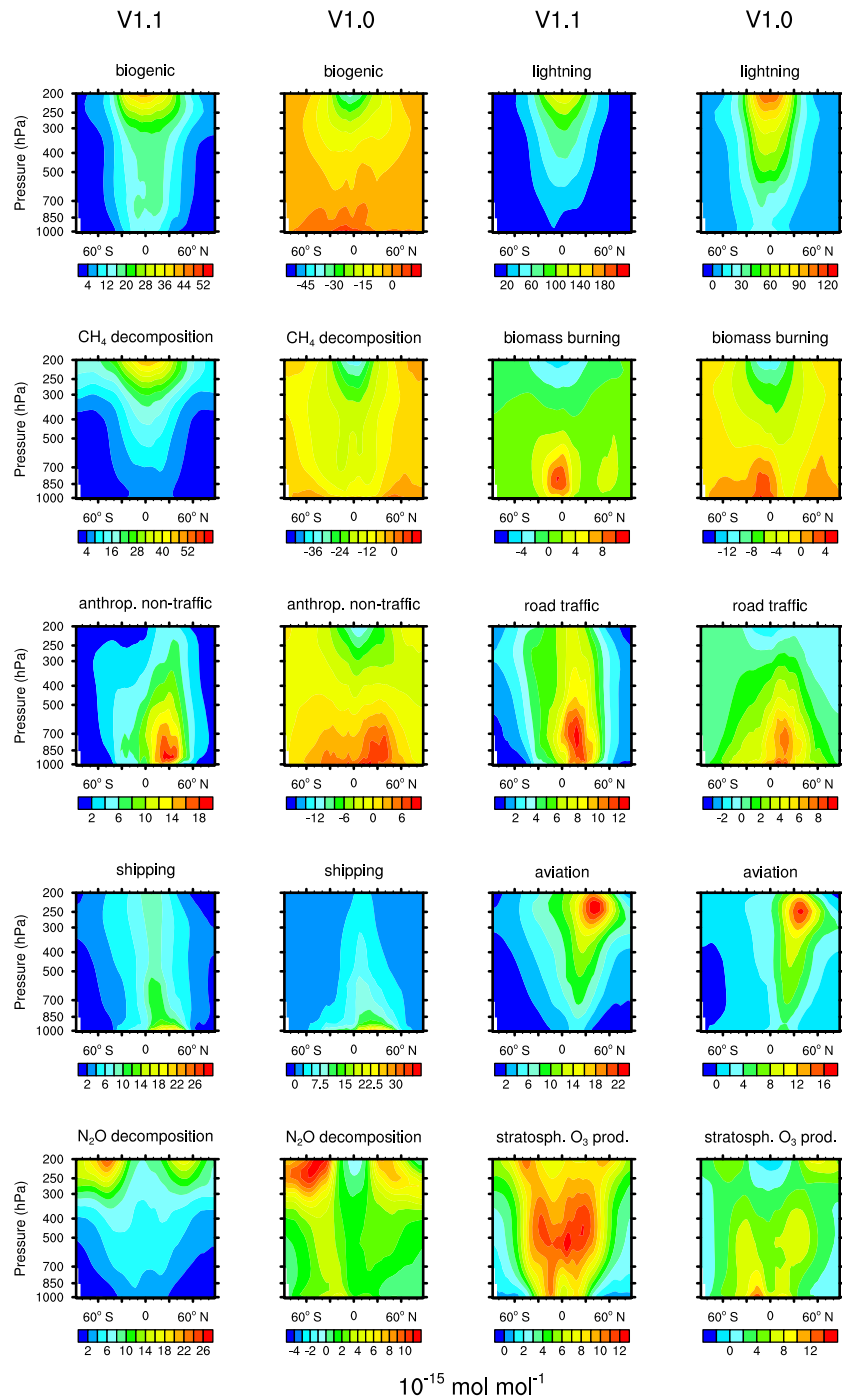
OH

Figure 1. Comparison of tagging method V1.1 and V1.0 for OH. First and third columns show the tagging method V1.1. Second and forth columns show the tagging method V1.0.
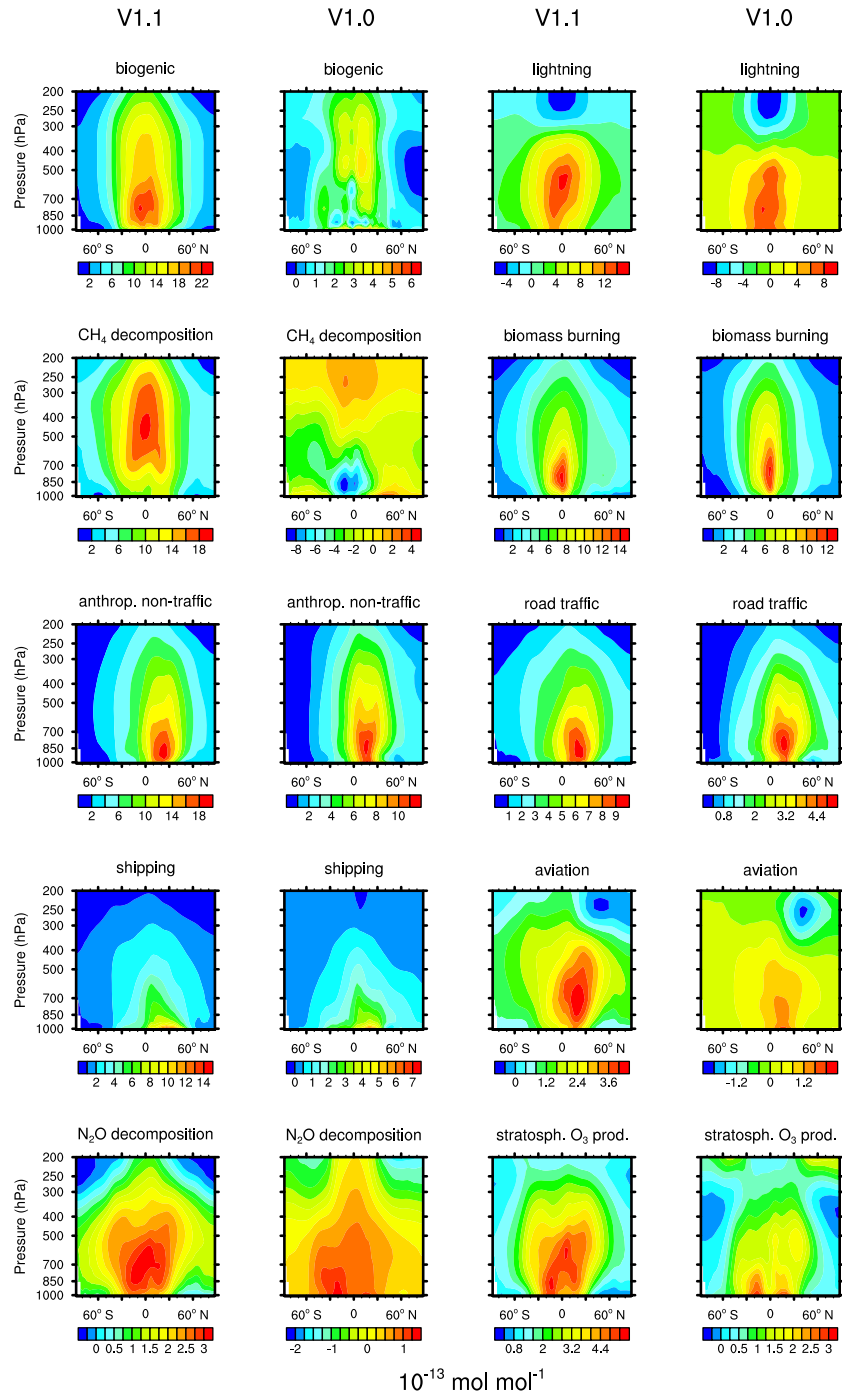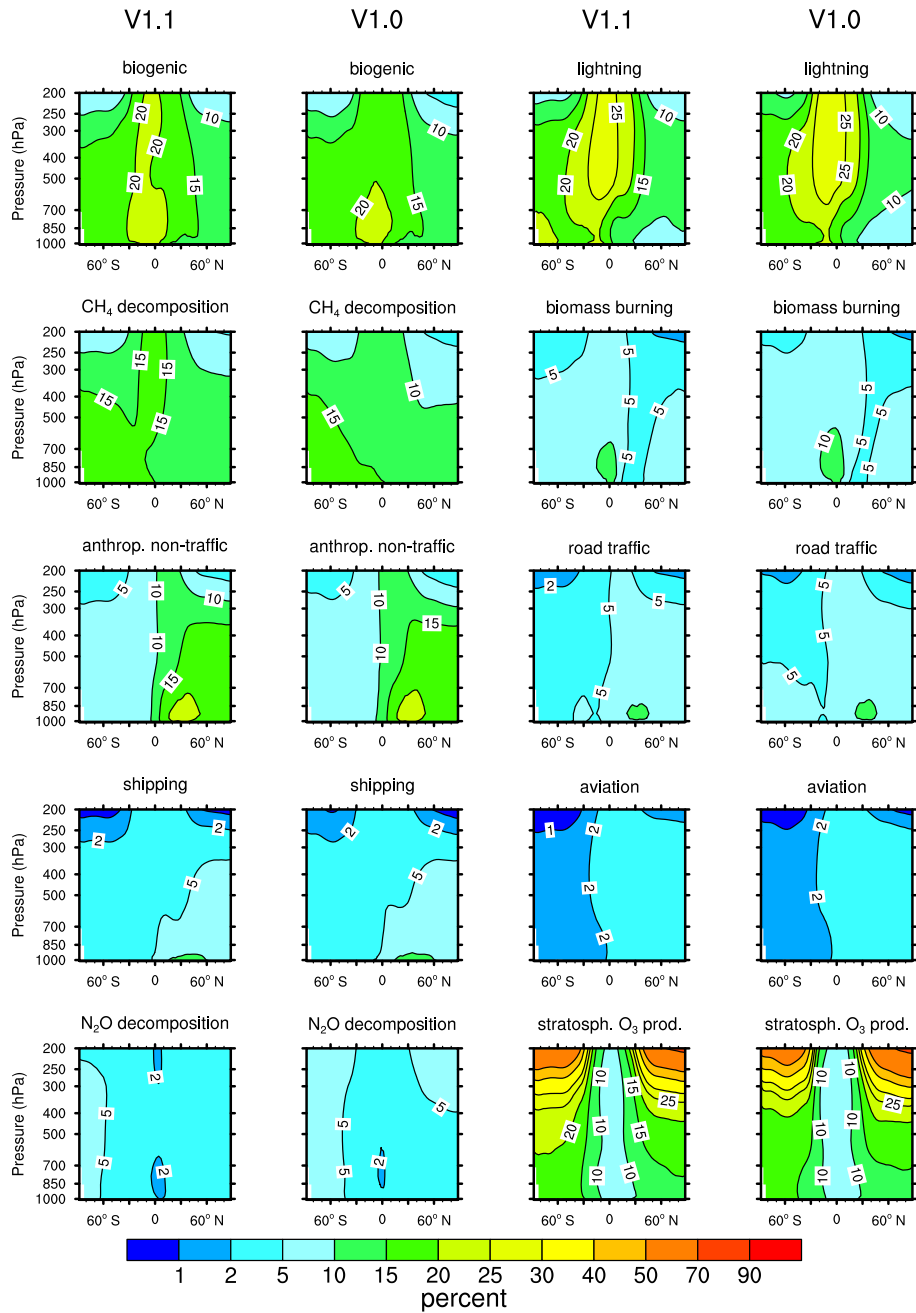
HO$_2$

Figure 2. Comparison of tagging method V1.1 and V1.0 for HO$_2$. First and third columns show the tagging method V1.1. Second and forth columns show the tagging method V1.0.

Figure 3. Comparison of tagging method V1.1 and V1.0 for O₃. First and third columns show the tagging method V1.1. Second and forth columns show the tagging method V1.0.
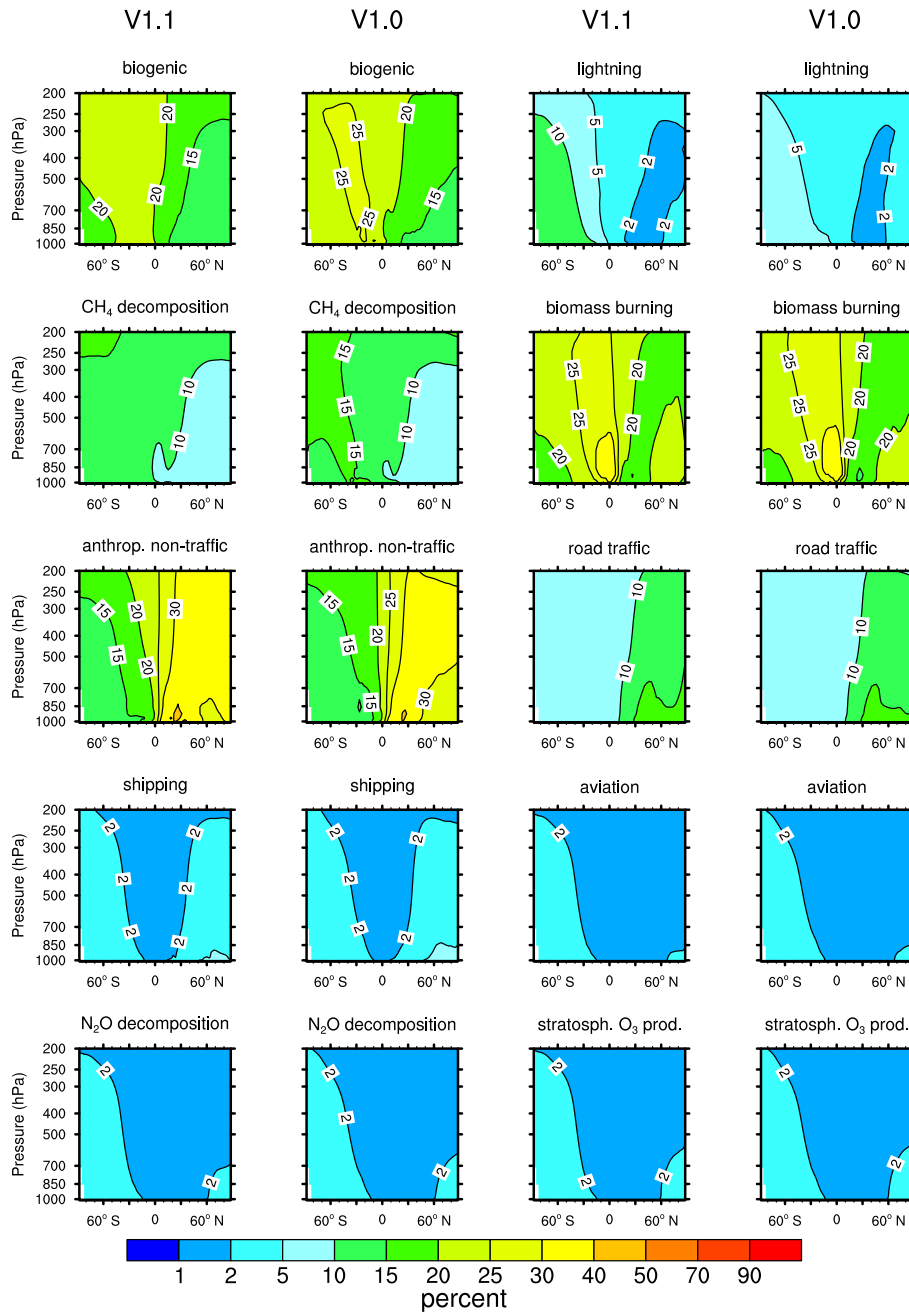
Figure 4. Comparison of tagging method V1.1 and V1.0 for CO. First and third columns show the tagging method V1.1. Second and forth columns show the tagging method V1.0.
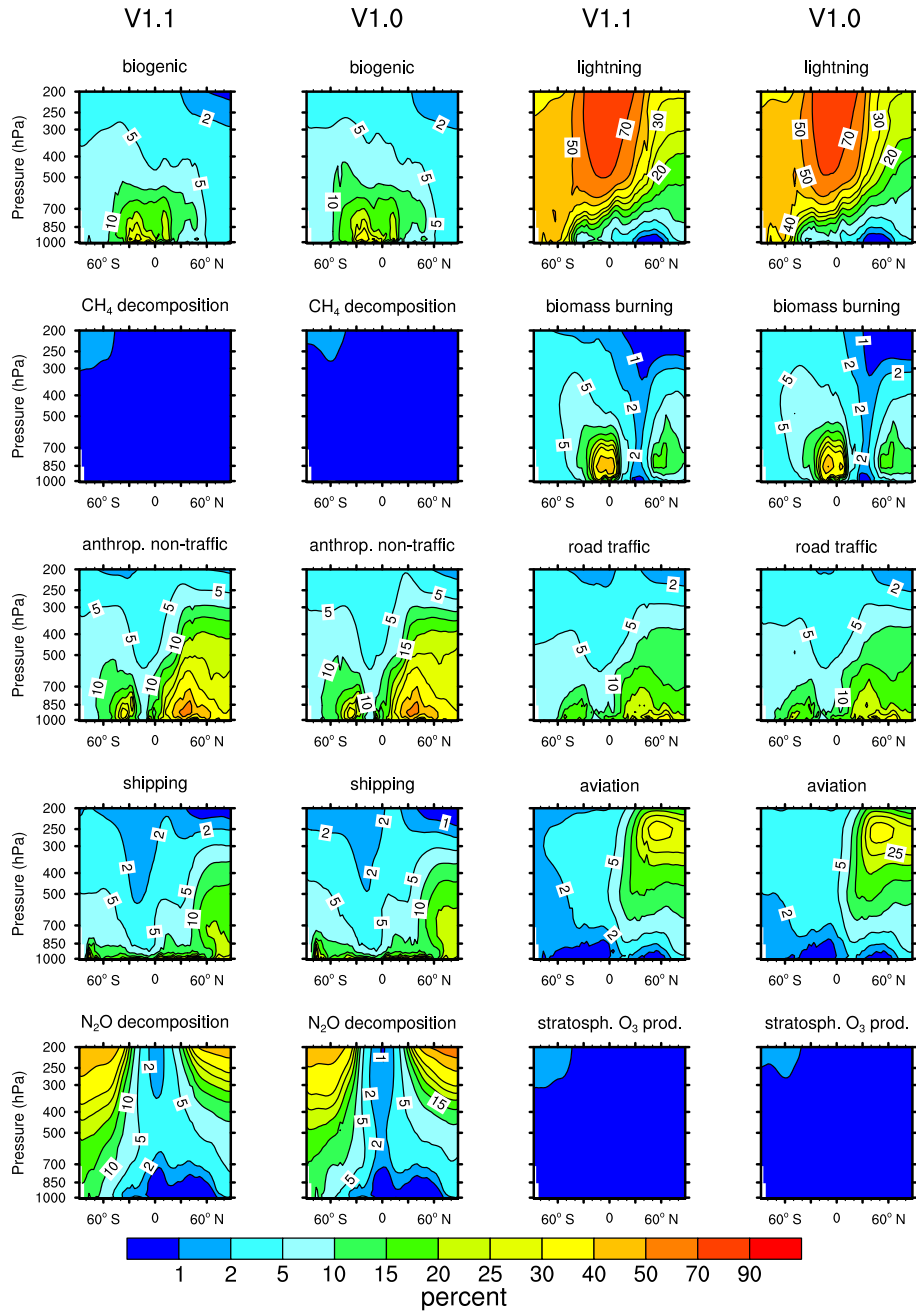
NO_y

Figure 5. Comparison of tagging method V1.1 and V1.0 for NO_y. First and third columns show the tagging method V1.1. Second and forth columns show the tagging method V1.0.
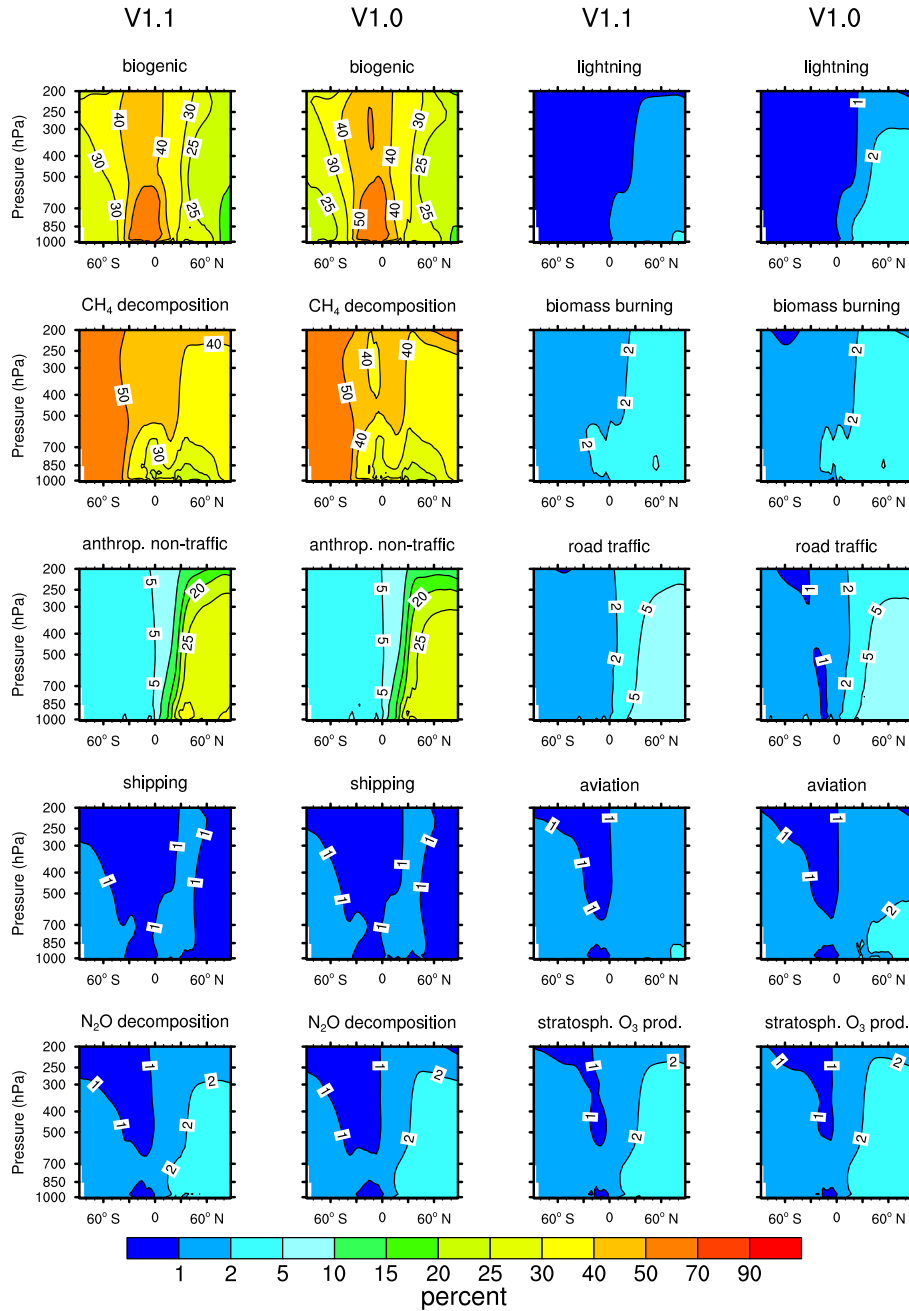
NMHC

Figure 6. Comparison of tagging method V1.1 and V1.0 for NMHC. First and third columns show the tagging method V1.1. Second and forth columns show the tagging method V1.0.
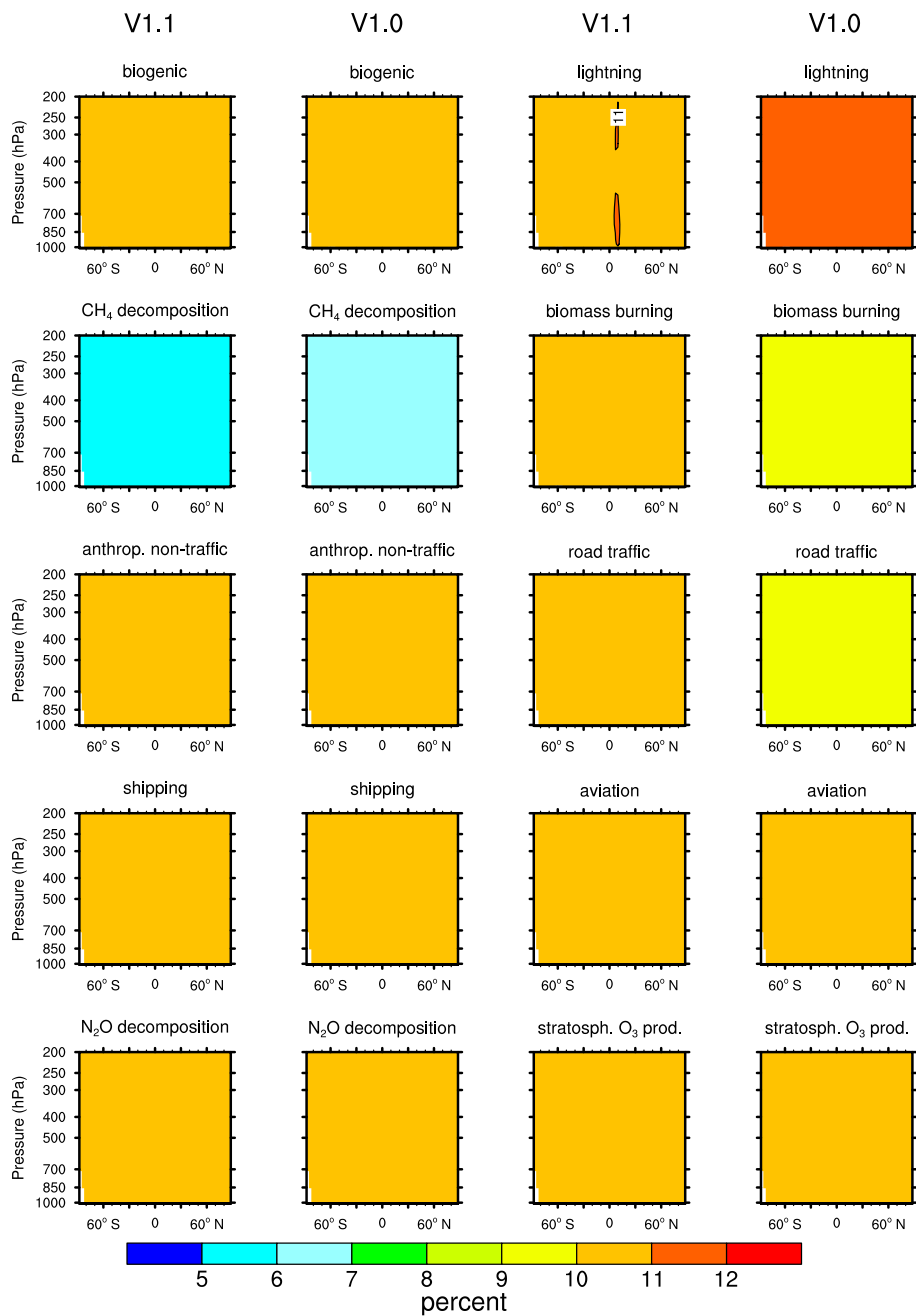
Figure 7. Comparison of tagging method V1.1 and V1.0 for PAN. First and third columns show the tagging method V1.1. Second and forth columns show the tagging method V1.0.