

Earth System Chemistry integrated Modelling (ESCiMo)

Publications

(last update: 2018-10-04)

— 2018 —

- Maycock, A. C., Randel, W. J., Steiner, A. K., Karpechko, A. Y., Christy, J., Saunders, R., Thompson, D. W. J., Zou, C.-Z., Chrysanthou, A., Luke Abraham, N., Akiyoshi, H., Archibald, A. T., Butchart, N., Chipperfield, M., Dameris, M., Deushi, M., Dhomse, S., Di Genova, G., Jöckel, P., Kinnison, D. E., Kirner, O., Ladstädter, F., Michou, M., Morgenstern, O., O'Connor, F., Oman, L., Pitari, G., Plummer, D. A., Revell, L. E., Rozanov, E., Stenke, A., Visionsi, D., Yamashita, Y., & Zeng, G.: *Revisiting the Mystery of Recent Stratospheric Temperature Trends*, Geophysical Research Letters, 0, doi: 10.1029/2018GL078035, URL <https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2018GL078035> (2018b)
- Maycock, A. C., Matthes, K., Tegtmeier, S., Schmidt, H., Thiéblemont, R., Hood, L., Akiyoshi, H., Bekki, S., Deushi, M., Jöckel, P., Kirner, O., Kunze, M., Marchand, M., Marsh, D. R., Michou, M., Plummer, D., Revell, L. E., Rozanov, E., Stenke, A., Yamashita, Y., & Yoshida, K.: *The representation of solar cycle signals in stratospheric ozone – Part 2: Analysis of global models*, Atmospheric Chemistry and Physics, 18, 11 323–11 343, doi: 10.5194/acp-18-11323-2018, URL <https://www.atmos-chem-phys.net/18/11323/2018/> (2018a)
- Ayarzagüena, B., Polvani, L. M., Langematz, U., Akiyoshi, H., Bekki, S., Butchart, N., Dameris, M., Deushi, M., Hardiman, S. C., Jöckel, P., Klekociuk, A., Marchand, M., Michou, M., Morgenstern, O., O'Connor, F. M., Oman, L. D., Plummer, D. A., Revell, L., Rozanov, E., Saint-Martin, D., Scinocca, J., Stenke, A., Stone, K., Yamashita, Y., Yoshida, K., & Zeng, G.: *No robust evidence of future changes in major stratospheric sudden warmings: a multi-model assessment from CCM1*, Atmospheric Chemistry and Physics, 18, 11 277–11 287, doi: 10.5194/acp-18-11277-2018, URL <https://www.atmos-chem-phys.net/18/11277/2018/> (2018)
- Dhomse, S. S., Kinnison, D., Chipperfield, M. P., Salawitch, R. J., Cionni, I., Hegglin, M. I., Abraham, N. L., Akiyoshi, H., Archibald, A. T., Bednarz, E. M., Bekki, S., Braesicke, P., Butchart, N., Dameris, M., Deushi, M., Frith, S., Hardiman, S. C., Hassler, B., Horowitz, L. W., Hu, R.-M., Jöckel, P., Josse, B., Kirner, O., Kremser, S., Langematz, U., Lewis, J., Marchand, M., Lin, M., Mancini, E., Marécal, V., Michou, M., Morgenstern, O., O'Connor, F. M., Oman, L., Pitari, G., Plummer, D. A., Pyle, J. A., Revell, L. E., Rozanov, E., Schofield, R., Stenke, A., Stone, K., Sudo, K., Tilmes, S., Visionsi, D., Yamashita, Y., & Zeng, G.: *Estimates of ozone return dates from Chemistry-Climate Model Initiative simulations*, Atmospheric Chemistry and Physics, 18, 8409–8438, doi: 10.5194/acp-18-8409-2018, URL <https://www.atmos-chem-phys.net/18/8409/2018/> (2018)
- Lossow, S., Hurst, D. F., Rosenlof, K. H., Stiller, G. P., von Clarmann, T., Brinkop, S., Dameris, M., Jöckel, P., Kinnison, D. E., Plieninger, J., Plummer, D. A., Ploeger, F., Read, W. G., Remsberg, E. E., Russell, J. M., & Tao, M.: *Trend differences in lower stratospheric water vapour between Boulder and the zonal mean and their role in understanding fundamental observational discrepancies*, Atmospheric Chemistry and Physics, 18, 8331–8351, doi: 10.5194/acp-18-8331-2018, URL <https://www.atmos-chem-phys.net/18/8331/2018/> (2018)
- Meul, S., Langematz, U., Kröger, P., Oberländer-Hayn, S., & Jöckel, P.: *Future changes in the stratosphere-to-troposphere ozone mass flux and the contribution from climate change and ozone recovery*, Atmospheric Chemistry and Physics, 18, 7721–7738, doi: 10.5194/acp-18-7721-2018, URL <https://www.atmos-chem-phys.net/18/7721/2018/> (2018)
- Wales, P. A., Salawitch, R. J., Nicely, J. M., Anderson, D. C., Canty, T. P., Baidar, S., Dix, B., Koenig, T. K., Volkamer, R., Chen, D., Huey, L. G., Tanner, D. J., Cuevas, C. A., Fernandez, R. P., Kinnison, D. E., Lamarque, J., SaizLopez, A., Atlas, E. L., Hall, S. R., Navarro, M. A., Pan, L. L., Schauffler, S. M., Stell, M., Tilmes, S., Ullmann, K., Weinheimer, A. J., Akiyoshi,

H., Chipperfield, M. P., Deushi, M., Dhomse, S. S., Feng, W., Graf, P., Hossaini, R., Jöckel, P., Mancini, E., Michou, M., Morgenstern, O., Oman, L. D., Pitari, G., Plummer, D. A., Revell, L. E., Rozanov, E., SaintMartin, D., Schofield, R., Stenke, A., Stone, K. A., Visioni, D., Yamashita, Y., & Zeng, G.: *Stratospheric Injection of Brominated Very ShortLived Substances: Aircraft Observations in the Western Pacific and Representation in Global Models*, Journal of Geophysical Research: Atmospheres, 0, doi: 10.1029/2017JD027978, URL <https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2017JD027978> (2018)

- Orbe, C., Yang, H., Waugh, D. W., Zeng, G., Morgenstern, O., Kinnison, D. E., Lamarque, J.-F., Tilmes, S., Plummer, D. A., Scinocca, J. F., Josse, B., Marecal, V., Jöckel, P., Oman, L. D., Strahan, S. E., Deushi, M., Tanaka, T. Y., Yoshida, K., Akiyoshi, H., Yamashita, Y., Stenke, A., Revell, L., Sukhodolov, T., Rozanov, E., Pitari, G., Visioni, D., Stone, K. A., Schofield, R., & Banerjee, A.: *Large-scale tropospheric transport in the Chemistry–Climate Model Initiative (CCMI) simulations*, Atmospheric Chemistry and Physics, 18, 7217–7235, doi: 10.5194/acp-18-7217-2018, URL <https://www.atmos-chem-phys.net/18/7217/2018/> (2018)
- Dietmüller, S., Eichinger, R., Garny, H., Birner, T., Boenisch, H., Pitari, G., Mancini, E., Visioni, D., Stenke, A., Revell, L., Rozanov, E., Plummer, D. A., Scinocca, J., Jöckel, P., Oman, L., Deushi, M., Kiyotaka, S., Kinnison, D. E., Garcia, R., Morgenstern, O., Zeng, G., Stone, K. A., & Schofield, R.: *Quantifying the effect of mixing on the mean age of air in CCMVal-2 and CCMI-1 models*, Atmospheric Chemistry and Physics, 18, 6699–6720, doi: 10.5194/acp-18-6699-2018, URL <https://www.atmos-chem-phys.net/18/6699/2018/> (2018)
- Gottschaldt, K.-D., Schlager, H., Baumann, R., Cai, D. S., Eyring, V., Graf, P., Grewe, V., Jöckel, P., Jurkat-Witschas, T., Voigt, C., Zahn, A., & Ziereis, H.: *Dynamics and composition of the Asian summer monsoon anticyclone*, Atmospheric Chemistry and Physics, 18, 5655–5675, doi: 10.5194/acp-18-5655-2018, URL <https://www.atmos-chem-phys.net/18/5655/2018/> (2018)
- Yan, Y., Pozzer, A., Ojha, N., Lin, J., & Lelieveld, J.: *Analysis of European ozone trends in the period 1995–2014*, Atmospheric Chemistry and Physics, 18, 5589–5605, doi: 10.5194/acp-18-5589-2018, URL <https://www.atmos-chem-phys.net/18/5589/2018/> (2018)
- Son, S.-W., Han, B.-R., Garfinkel, C., Kim, S.-Y., Park, R., Abraham, N. L., Akiyoshi, H., Archibald, A., Butchart, N., Chipperfield, M., Dameris, M., Deushi, M., Dhomse, S. S., Hardiman, S., Jöckel, P., Kinnison, D., Michou, M., Morgenstern, O., O’Connor, F. M., Oman, L. D., Plummer, D. A., Pozzer, A., Revell, L. E., Rozanov, E., Stenke, A., Stone, K., Tilmes, S., Yamashita, Y., & Zeng, G.: *Tropospheric jet response to Antarctic ozone depletion: An update with Chemistry–Climate Model Initiative (CCMI) models*, Environmental Research Letters, URL <https://doi.org/10.1088/1748-9326/aabf21> (2018)
- Engel, A., Bönisch, H., Ostermüller, J., Chipperfield, M. P., Dhomse, S., & Jöckel, P.: *A refined method for calculating equivalent effective stratospheric chlorine*, Atmospheric Chemistry and Physics, 18, 601–619, doi: 10.5194/acp-18-601-2018, URL <https://www.atmos-chem-phys.net/18/601/2018/> (2018)
- Zhang, J., Tian, W., Xie, F., Chipperfield, M. P., Feng, W., Son, S., Abraham, N., Archibald, A. T., Bekki, S., Butchart, N., Deushi, M., Dhomse, S., Han, Y., Jöckel, P., Kinnison, D., Kirner, O., Michou, M., Morgenstern, O., O’Connor, F. M., Pitari, G., Plummer, D. A., Revell, L. E., Rozanov, E., Visioni, D., Wang, W., & Zeng, G.: *Stratospheric ozone loss over the Eurasian continent induced by the polar vortex shift*, Nature Communications, 9, 206, doi: 10.1038/s41467-017-02565-2, URL <https://doi.org/10.1038/s41467-017-02565-2> (2018)

— 2017 —

- Hüneke, T., Aderhold, O.-A., Bounin, J., Dorf, M., Gentry, E., Grossmann, K., Groß, J.-U., Hoor, P., Jöckel, P., Kenntner, M., Knapp, M., Knecht, M., Lörks, D., Ludmann, S., Matthes, S., Raecke, R., Reichert, M., Weimar, J., Werner, B., Zahn, A., Ziereis, H., & Pfeilsticker, K.: *The novel HALO mini-DOAS instrument: inferring trace gas concentrations from airborne UV/visible limb spectroscopy under all skies using the scaling method*, Atmospheric Measurement Techniques, 10, 4209–4234, doi: 10.5194/amt-10-4209-2017, URL <https://www.atmos-meas-tech.net/10/4209/2017/> (2017)

- Anderson, D. C., Nicely, J. M., Wolfe, G. M., Hanisco, T. F., Salawitch, R. J., Canty, T. P., Dickerson, R. R., Apel, E. C., Baidar, S., Bannan, T. J., Blake, N. J., Chen, D., Dix, B., Fernandez, R. P., Hall, S. R., Hornbrook, R. S., Gregory Huey, L., Josse, B., Jöckel, P., Kinnison, D. E., Koenig, T. K., Le Breton, M., Marécal, V., Morgenstern, O., Oman, L. D., Pan, L. L., Percival, C., Plummer, D., Revell, L. E., Rozanov, E., Saiz-Lopez, A., Stenke, A., Sudo, K., Tilmes, S., Ullmann, K., Volkamer, R., Weinheimer, A. J., & Zeng, G.: *Formaldehyde in the Tropical Western Pacific: Chemical Sources and Sinks, Convective Transport, and Representation in CAM-Chem and the CCMI Models*, Journal of Geophysical Research: Atmospheres, pp. n/a–n/a, doi: 10.1002/2016JD026121, URL <http://dx.doi.org/10.1002/2016JD026121>, 2016JD026121 (2017)
- Lossow, S., Garny, H., & Jöckel, P.: *An “island” in the stratosphere – on the enhanced annual variation of water vapour in the middle and upper stratosphere in the southern tropics and subtropics*, Atmospheric Chemistry and Physics, 17, 11 521–11 539, doi: 10.5194/acp-17-11521-2017, URL <https://www.atmos-chem-phys.net/17/11521/2017/> (2017)
- Falk, S., Sinnhuber, B.-M., Krysztofiak, G., Jöckel, P., Graf, P., & Lennartz, S. T.: *Brominated VSLs and their influence on ozone under a changing climate*, Atmospheric Chemistry and Physics, 17, 11 313–11 329, doi: 10.5194/acp-17-11313-2017, URL <https://www.atmos-chem-phys.net/17/11313/2017/> (2017)
- Dietmüller, S., Garny, H., Plöger, F., Jöckel, P., & Cai, D.: *Effects of mixing on resolved and unresolved scales on stratospheric age of air*, Atmospheric Chemistry and Physics, 17, 7703–7719, doi: 10.5194/acp-17-7703-2017, URL <https://www.atmos-chem-phys.net/17/7703/2017/> (2017)
- Ojha, N., Pozzer, A., Akritidis, D., & Lelieveld, J.: *Secondary ozone peaks in the troposphere over the Himalayas*, Atmospheric Chemistry and Physics, 17, 6743–6757, doi: 10.5194/acp-17-6743-2017, URL <http://www.atmos-chem-phys.net/17/6743/2017/> (2017)
- Gottschaldt, K.-D., Schlager, H., Baumann, R., Bozem, H., Eyring, V., Hoor, P., Jöckel, P., Jurkat, T., Voigt, C., Zahn, A., & Ziereis, H.: *Trace gas composition in the Asian summer monsoon anticyclone: a case study based on aircraft observations and model simulations*, Atmospheric Chemistry and Physics, 17, 6091–6111, doi: 10.5194/acp-17-6091-2017, URL <http://www.atmos-chem-phys.net/17/6091/2017/> (2017)
- Ostermüller, J., Bönisch, H., Jöckel, P., & Engel, A.: *A new time-independent formulation of fractional release*, Atmospheric Chemistry and Physics, 17, 3785–3797, doi: 10.5194/acp-17-3785-2017, URL <http://www.atmos-chem-phys.net/17/3785/2017/> (2017)
- Lennartz, S. T., Marandino, C. A., von Hobe, M., Cortes, P., Quack, B., Simo, R., Booge, D., Pozzer, A., Steinhoff, T., Arevalo-Martinez, D. L., Kloss, C., Bracher, A., Röttgers, R., Atlas, E., & Krüger, K.: *Direct oceanic emissions unlikely to account for the missing source of atmospheric carbonyl sulfide*, Atmospheric Chemistry and Physics, 17, 385–402, doi: 10.5194/acp-17-385-2017, URL <http://www.atmos-chem-phys.net/17/385/2017/> (2017)
- Eckstein, J., Ruhnke, R., Zahn, A., Neumaier, M., Kirner, O., & Braesicke, P.: *An assessment of the climatological representativeness of IAGOS-CARIBIC trace gas measurements using EMAC model simulations*, Atmospheric Chemistry and Physics, 17, 2775–2794, doi: 10.5194/acp-17-2775-2017, URL <http://www.atmos-chem-phys.net/17/2775/2017/> (2017)
- Morgenstern, O., Hegglin, M. I., Rozanov, E., O’Connor, F. M., Abraham, N. L., Akiyoshi, H., Archibald, A. T., Bekki, S., Butchart, N., Chipperfield, M. P., Deushi, M., Dhomse, S. S., Garcia, R. R., Hardiman, S. C., Horowitz, L. W., Jöckel, P., Josse, B., Kinnison, D., Lin, M., Mancini, E., Manyin, M. E., Marchand, M., Marécal, V., Michou, M., Oman, L. D., Pitari, G., Plummer, D. A., Revell, L. E., Saint-Martin, D., Schofield, R., Stenke, A., Stone, K., Sudo, K., Tanaka, T. Y., Tilmes, S., Yamashita, Y., Yoshida, K., & Zeng, G.: *Review of the global models used within phase 1 of the Chemistry–Climate Model Initiative (CCMI)*, Geoscientific Model Development, 10, 639–671, doi: 10.5194/gmd-10-639-2017, URL <http://www.geosci-model-dev.net/10/639/2017/> (2017)

— 2016 —

- Bacer, S., Christoudias, T., & Pozzer, A.: *Projection of North Atlantic Oscillation and its effect on tracer transport*, Atmospheric Chemistry and Physics, 16, 15 581–15 592, doi: 10.5194/acp-16-15581-2016, URL <http://www.atmos-chem-phys.net/16/15581/2016/> (2016)

- Akritidis, D., Pozzer, A., Zanis, P., Tyrlis, E., Škerlak, B., Sprenger, M., & Lelieveld, J.: *On the role of tropopause folds in summertime tropospheric ozone over the eastern Mediterranean and the Middle East*, Atmospheric Chemistry and Physics, 16, 14 025–14 039, doi: 10.5194/acp-16-14025-2016, URL <http://www.atmos-chem-phys.net/16/14025/2016/> (2016)
- Brinkop, S., Dameris, M., Jöckel, P., Garny, H., Lossow, S., & Stiller, G.: *The millennium water vapour drop in chemistryclimate model simulations*, Atmospheric Chemistry and Physics, 16, 8125–8140, doi: 10.5194/acp-16-8125-2016, URL <http://www.atmos-chem-phys.net/16/8125/2016/> (2016)
- Beirle, S., Hörmann, C., Jöckel, P., Liu, S., Penning de Vries, M., Pozzer, A., Sihler, H., Valks, P., & Wagner, T.: *The STRatospheric Estimation Algorithm from Mainz (STREAM): estimating stratospheric NO₂ from nadir-viewing satellites by weighted convolution*, Atmospheric Measurement Techniques, 9, 2753–2779, doi: 10.5194/amt-9-2753-2016, URL <http://www.atmos-meas-tech.net/9/2753/2016/> (2016)
- Löffler, M., Brinkop, S., & Jöckel, P.: *Impact of major volcanic eruptions on stratospheric water vapour*, Atmospheric Chemistry and Physics, 16, 6547–6562, doi: 10.5194/acp-16-6547-2016, URL <http://www.atmos-chem-phys.net/16/6547/2016/> (2016)
- Jöckel, P., Tost, H., Pozzer, A., Kunze, M., Kirner, O., Brenninkmeijer, C. A. M., Brinkop, S., Cai, D. S., Dyroff, C., Eckstein, J., Frank, F., Garny, H., Gottschaldt, K.-D., Graf, P., Grewe, V., Kerkweg, A., Kern, B., Matthes, S., Mertens, M., Meul, S., Neumaier, M., Nützel, M., Oberländer-Hayn, S., Ruhnke, R., Runde, T., Sander, R., Scharffe, D., & Zahn, A.: *Earth System Chemistry integrated Modelling (ESCiMo) with the Modular Earth Submodel System (MESSy) version 2.51*, Geoscientific Model Development, 9, 1153–1200, doi: 10.5194/gmd-9-1153-2016, URL <http://www.geosci-model-dev.net/9/1153/2016/> (2016)