

Supplementary Materials: Atmospheric Moisture Pathways to the Highlands of the Tropical Andes: Analyzing the Effects of Spectral Nudging on Different Driving Fields for Regional Climate Modeling

Katja Trachte¹ 

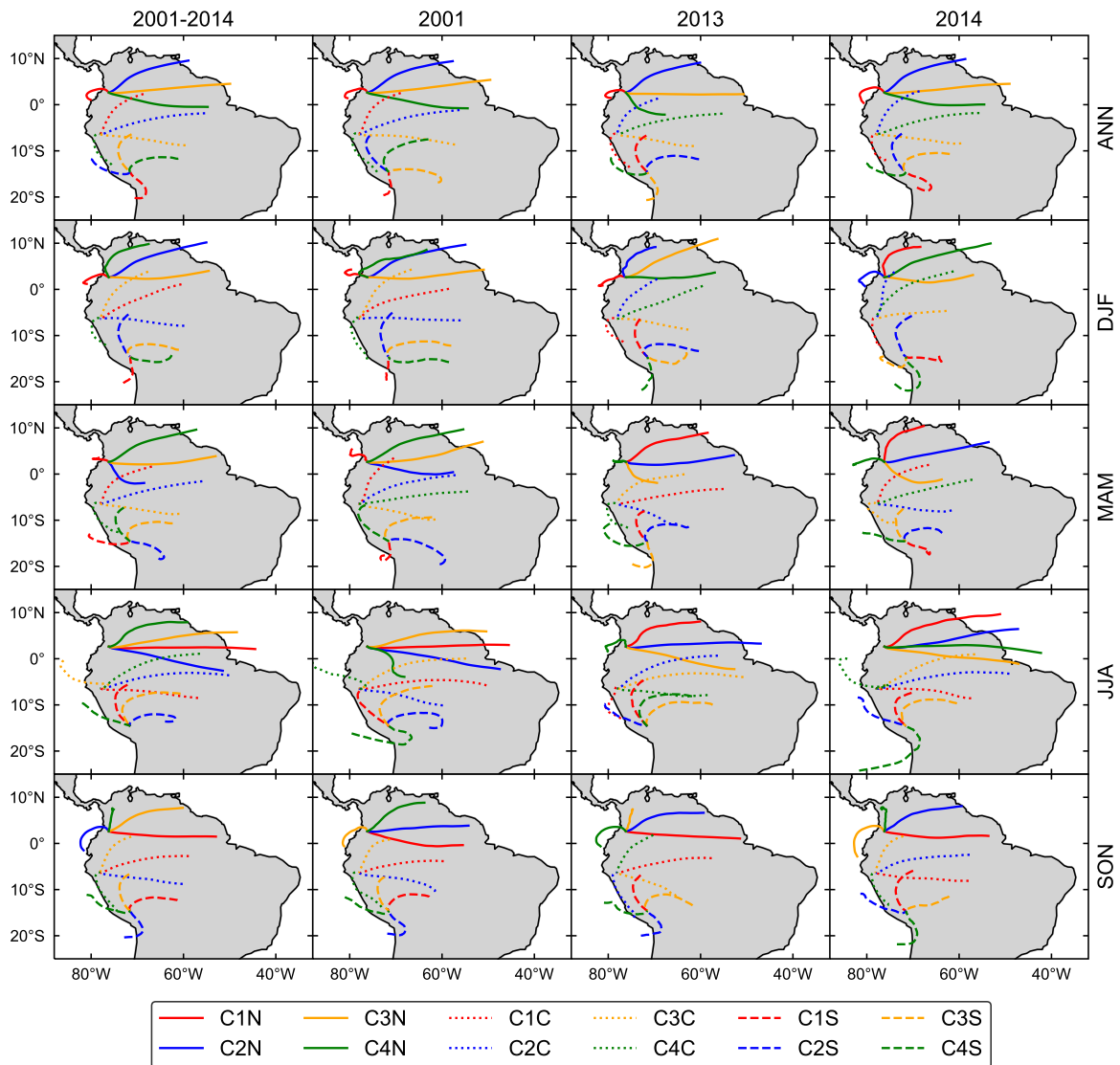


Figure S1. Mean cluster trajectories (C1–C4) of the WERAN simulations at the starting level of 500 m (agl) of each subregion (N solid line C1N–C4N, C dotted line C1C–C4C, S dashed line C1S–C4S) for the years 2001, 2013, 2014, as well as the three-year period 2001–2014 (ANN) and the respective seasons (DJF, MAM, JJA, SON).

Table S1. Frequency of the occurrence of mean cluster trajectories of the WERAN simulations at the starting level of 500 m (agl) in Subregions N, C, S, for the years 2001, 2013, 2014, as well as the three-year period 2001–2014 (ANN) and the respective seasons (DJF, MAM, JJA, SON).

Subregion	Year(s)	Cluster	ANN	DJF	MAM	JJA	SON
N	2001–2014	C1	10.9	11.7	9.5	39.7	54.5
N	2001–2014	C2	25.9	39.3	11.2	28.5	17.4
N	2001–2014	C3	35.6	38.8	41.0	25.1	19.4
N	2001–2014	C4	27.6	10.2	38.3	6.7	8.8
N	2001	C1	7.9	5.4	4.0	38.1	24.5
N	2001	C2	25.3	40.5	31.5	31.3	33.8
N	2001	C3	36.5	47.5	29.0	25.7	19.5
N	2001	C4	30.3	6.6	35.5	4.9	22.2
N	2013	C1	13.3	16.9	33.0	8.0	55.2
N	2013	C2	26.9	11.0	35.4	56.0	20.0
N	2013	C3	52.6	38.4	15.5	34.2	9.4
N	2013	C4	7.1	33.7	16.1	1.8	15.5
N	2014	C1	11.4	17.1	15.5	7.7	54.1
N	2014	C2	27.4	12.7	62.0	31.0	18.8
N	2014	C3	33.9	27.5	16.1	35.3	18.8
N	2014	C4	27.3	42.6	6.4	26.0	8.2
C	2001–2014	C1	21.8	28.4	16.6	35.6	31.5
C	2001–2014	C2	39.1	31.0	40.0	38.3	34.8
C	2001–2014	C3	33.1	30.0	39.1	2.9	24.8
C	2001–2014	C4	6.1	10.6	4.3	23.2	9.0
C	2001	C1	19.1	29.7	11.2	40.8	45.4
C	2001	C2	38.7	41.9	25.3	20.3	22.7
C	2001	C3	39.4	23.6	27.9	35.7	27.0
C	2001	C4	2.9	4.8	35.6	3.2	4.9
C	2013	C1	9.0	20.8	47.3	1.5	39.1
C	2013	C2	18.8	22.2	25.7	27.8	11.0
C	2013	C3	31.3	29.4	21.3	36.7	21.2
C	2013	C4	40.9	27.6	5.6	34.0	28.7
C	2014	C1	6.2	6.9	19.5	32.6	42.6
C	2014	C2	25.1	25.9	43.1	42.9	25.8
C	2014	C3	32.9	35.0	6.8	20.7	20.7
C	2014	C4	35.9	32.2	30.7	3.8	10.8
S	2001–2014	C1	17.1	26.8	17.8	31.1	19.6
S	2001–2014	C2	15.0	38.0	21.7	17.2	16.3
S	2001–2014	C3	42.6	14.6	25.8	28.1	48.1
S	2001–2014	C4	25.3	20.6	34.8	23.6	16.1
S	2001	C1	14.0	28.8	8.2	42.7	24.0
S	2001	C2	38.1	38.2	26.9	14.9	11.2
S	2001	C3	20.8	15.8	34.1	35.3	50.6
S	2001	C4	27.1	17.2	30.8	7.1	14.2
S	2013	C1	43.0	36.8	37.3	30.7	45.3
S	2013	C2	25.0	17.9	28.0	22.3	20.4

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Table S1. Frequency of the occurrence of mean cluster trajectories of the WERAN simulations at the starting level of 500 m (agl) in Subregions N, C, S, for the years 2001, 2013, 2014, as well as the three-year period 2001–2014 (ANN) and the respective seasons (DJF, MAM, JJA, SON).

Subregion	Year(s)	Cluster	ANN	DJF	MAM	JJA	SON
S	2013	C3	16.2	21.0	12.7	22.3	18.8
S	2013	C4	15.8	24.4	22.0	24.8	15.5
S	2014	C1	22.1	25.6	22.5	34.5	48.8
S	2014	C2	39.7	42.1	19.0	28.7	16.2
S	2014	C3	21.1	13.9	36.6	31.8	20.0
S	2014	C4	17.2	18.4	21.8	4.9	15.0

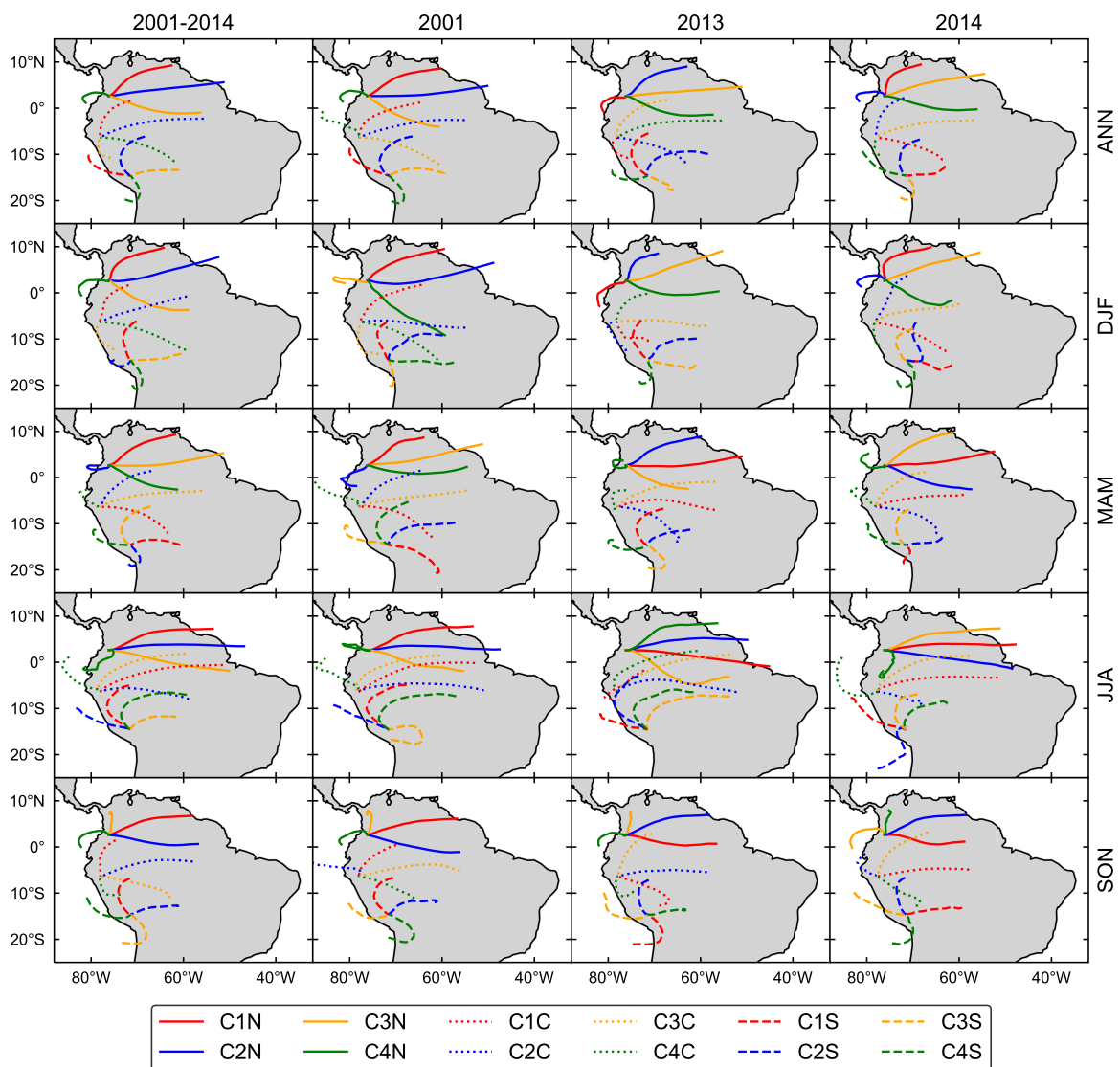


Figure S2. Mean cluster trajectories (C1–C4) of the WERAN simulations at the starting level of 6300 m (asl) of each subregion (N solid line C1N–C4N, C dotted line C1C–C4C, S dashed line C1S–C4S) for the years 2001, 2013, 2014, as well as the three-year period 2001–2014 (ANN) and the respective seasons (DJF, MAM, JJA, SON).

Table S2. Frequency of the occurrence of mean cluster trajectories of the WERAN simulations at the starting level of 6300 m (asl) in Subregions N, C, S, for the years 2001, 2013, 2014, as well as the three-year period 2001–2014 (ANN) and the respective seasons (DJF, MAM, JJA, SON).

Subregion	Year(s)	Cluster	ANN	DJF	MAM	JJA	SON
N	2001–2014	C1	23.6	23.5	26.9	27.9	38.1
N	2001–2014	C2	37.8	44.9	5.7	39.9	36.1
N	2001–2014	C3	28.8	19.2	46.4	30.5	13.4
N	2001–2014	C4	9.8	12.5	21.0	1.7	12.3
N	2001	C1	24.5	21.2	19.5	30.3	47.5
N	2001	C2	51.1	53.6	5.4	44.7	29.6
N	2001	C3	14.8	10.8	34.9	22.4	12.1
N	2001	C4	9.5	14.4	40.2	2.6	10.7
N	2013	C1	8.7	14.5	42.6	37.7	35.4
N	2013	C2	24.7	21.3	25.1	40.2	41.6
N	2013	C3	42.3	35.3	24.8	9.8	11.5
N	2013	C4	24.3	28.9	7.6	12.3	11.5
N	2014	C1	13.5	23.4	30.2	34.3	34.6
N	2014	C2	9.9	11.5	27.3	31.5	33.8
N	2014	C3	43.0	43.4	37.1	30.3	16.7
N	2014	C4	33.6	21.7	5.5	3.9	15.0
C	2001–2014	C1	17.9	18.9	37.2	43.4	17.4
C	2001–2014	C2	43.4	27.5	15.1	29.0	37.4
C	2001–2014	C3	8.0	14.5	42.0	21.7	35.4
C	2001–2014	C4	30.8	39.2	5.7	5.9	9.9
C	2001	C1	17.1	28.3	34.4	25.0	17.9
C	2001	C2	40.7	38.8	17.6	38.0	6.2
C	2001	C3	36.0	7.2	43.2	28.1	51.4
C	2001	C4	6.1	25.7	4.8	8.9	24.5
C	2013	C1	10.0	15.2	26.3	4.3	30.3
C	2013	C2	28.2	16.9	27.5	34.6	42.4
C	2013	C3	17.1	48.1	39.6	43.6	16.4
C	2013	C4	44.7	19.9	6.7	17.5	10.9
C	2014	C1	29.4	30.4	36.4	42.8	49.4
C	2014	C2	20.9	25.9	33.1	27.4	10.7
C	2014	C3	40.9	32.1	22.6	22.9	15.2
C	2014	C4	8.7	11.6	7.9	7.0	24.7
S	2001–2014	C1	19.8	32.2	31.0	31.3	41.3
S	2001–2014	C2	35.4	8.4	13.3	29.7	21.3
S	2001–2014	C3	28.3	35.5	30.8	15.9	17.7
S	2001–2014	C4	16.6	24.0	24.9	23.1	19.7
S	2001	C1	20.9	34.8	30.7	28.7	44.5
S	2001	C2	33.4	13.6	26.2	33.9	19.1
S	2001	C3	28.9	25.8	15.0	17.0	20.3
S	2001	C4	16.9	25.8	28.1	20.5	16.1
S	2013	C1	35.4	32.4	33.5	22.3	22.7
S	2013	C2	20.2	18.9	20.3	29.9	38.9

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Table S2. Frequency of the occurrence of mean cluster trajectories of the WERAN simulations at the starting level of 6300 m (asl) in Subregions N, C, S, for the years 2001, 2013, 2014, as well as the three-year period 2001–2014 (ANN) and the respective seasons (DJF, MAM, JJA, SON).

Subregion	Year(s)	Cluster	ANN	DJF	MAM	JJA	SON
S	2013	C3	24.3	30.5	16.3	26.4	19.2
S	2013	C4	20.1	18.2	29.9	21.3	19.2
S	2014	C1	26.6	29.8	16.0	41.1	25.0
S	2014	C2	29.9	15.1	30.7	5.4	37.7
S	2014	C3	19.8	24.7	28.7	29.7	20.9
S	2014	C4	23.8	30.5	24.6	23.8	16.4