Table S1 Top 10 sources of precipitation for the country Brazil – Comparison between results from the 3D QIBT model (fed with NCEP-DOE AMIP-II data (Kanamitsu et al., 2002) for wind and evaporation and CMAP data (Xie and Arkin, 1997) for precipitation) and the WAM-2layers model (fed with ERA-Interim data (Berrisford et al., 2011; Dee et al., 2011)) – Sources appearing in both lists are displayed in bold font; UA = Unassigned

Rank	Top 10 sources of precipitation for Brazil in %			
	3D QIBT		WAM-2layers	
1	**Brazil**	46.3	**Sea**	63.3
2	**Sea**	43.3	**Brazil**	28.9
3	**Bolivia**	2.4	**Bolivia**	1.2
4	**Peru**	1.3	**Peru**	0.6
5	**Argentina**	1.2	**Argentina**	0.6
6	**Paraguay**	0.9	Angola	0.4
7	Nigeria	0.6	**Paraguay**	0.4
8	Côte d'Ivoire	0.5	Venezuela	0.3
9	Ghana	0.4	Guyana	0.3
10	Other land	2.9	Other land + UA	4.0

Table S2 Top 10 sources of precipitation for the country Egypt – Comparison between results from the 3D QIBT model (fed with NCEP-DOE AMIP-II data (Kanamitsu et al., 2002) for wind and evaporation and CMAP data (Xie and Arkin, 1997) for precipitation) and the WAM-2layers model (fed with ERA-Interim data (Berrisford et al., 2011; Dee et al., 2011)) – Sources appearing in both lists are displayed in bold font; UA = Unassigned

Rank	Top 10 sources of precipitation for Egypt in %			
	3D QIBT		WAM-2layers	
1	**Sea**	82.4	**Sea**	76.6
2	**Libya**	3.3	**Egypt**	2.7
3	**Egypt**	2.8	**Turkey**	1.9
4	**Algeria**	1.4	**Greece**	1.2
5	**Greece**	1.0	**Libya**	1.1
6	Spain	1.0	**Sudan / South Sudan**	0.9
7	**Sudan / South Sudan**	0.7	**Algeria**	0.9
8	Morocco	0.6	Nigeria	0.8
9	**Turkey**	0.6	United States	0.8
10	Other land	6.0	Other land + UA	13.1

Table S3 Top 10 sources of precipitation for the country Laos – Comparison between results from the 3D QIBT model (fed with NCEP-DOE AMIP-II data (Kanamitsu et al., 2002) for wind and evaporation and CMAP data (Xie and Arkin, 1997) for precipitation) and the WAM-2layers model (fed with ERA-Interim data (Berrisford et al., 2011; Dee et al., 2011)) – Sources appearing in both lists are displayed in bold font; UA = Unassigned fractions due to system boundary losses

Rank	Top 10 sources of precipitation for Laos in %			
	3D QIBT		WAM-2layers	
1	**Sea**	56.3	**Sea**	70.0
2	**Thailand**	9.4	**Thailand**	6.4
3	**Burma**	6.9	**Laos**	4.1
4	**Laos**	6.6	**India**	3.9
5	**India**	6.2	**Burma**	3.6
6	**China**	5.2	**China**	3.4
7	**Vietnam**	4.0	**Vietnam**	1.9
8	**Cambodia**	2.2	**Cambodia**	1.3
9	Pakistan	0.4	Indonesia	0.4
10	Other land	2.9	Other land + UA	5.0