(a) APO Annual Mean (per meg)

	Jena									
	SPO	PSA	CGO	SMO	KUM	MLO	LJO	CBA	BRW	ALT
Observation	−3.4	−6.4	0.2	1.6	−2.2	0.7	−3.7	−1.3	−7	−7.6
CAM−SD	−10.5	−12.3	−1.8	−2.1	−0.8	−0.1	22.5	−1.8	−7.8	−8.7
CAMS_LMDZ	−1.7	−4.7	3	0.1	−1.2	−1.4	−2.4	5.6	0.6	−6.1
CTE_TM5	−2.5	−4.6	1.9	−0.5	−1.4	−2	6.6	−2.6	−3.1	−1.8
Jena_TM3	−1	−3.1	2.6	1	−0.3	−1.1	−4	2	−4.1	−4.9
NICAM−TM_gl5	−6.8	−10.4	−0.5	−3.9	−3.3	−3.1	13.5	8.9	6.1	2.6
NICAM−TM_gl6	−4.9	−8.3	1.5	−2.3	−1.1	−1.6	1.7	7.7	7.4	3.3
NIES	−0.6	−2.7	3.6	0.7	1	0.6	−5.8	−0.7	−2.5	−2.7
MIROC4−ACTM	−6.5	−8.9	−0.1	−3.7	−2.3	−4.7	19.2	−0.8	−3.1	−2.3

	CESM									
	SPO	PSA	CGO	SMO	KUM	MLO	LJO	CBA	BRW	ALT
Observation	−3.4	−6.4	0.2	1.6	−2.2	0.7	−3.7	−1.3	−7	−7.6
CAM−SD	−3.5	−3.1	1.6	7.4	0.9	1.5	−9.1	−2.4	−12.2	−14.1
CAMS_LMDZ	0.9	−1.4	2.9	4.9	−2.5	−0.3	−6.2	0.5	−7.5	−9.6
CTE_TM5	1.7	−0.3	2.7	5.2	−1.2	0.1	−9	−1.2	−6.6	−7.4
Jena_TM3	−0.5	−0.5	0.9	5.6	−1.6	−1.1	−6.7	0.4	−7.5	−9.3
NICAM−TM_gl5	1.5	−1.4	2.9	3.8	−1.2	1.9	−9.5	4.1	−6.5	−9.1
NICAM−TM_gl6	2.5	0.1	3.8	5.2	−0.6	2.7	−16	4	−5.9	−8
NIES	2.2	0.1	2.9	5.6	−0.8	1.7	−10.9	−1	−6.2	−7.7
MIROC4−ACTM	0	−1.4	2.2	4.5	−1.6	1.3	−5.2	−0.6	−6	−9.1

	DISS									
	SPO	PSA	CGO	SMO	KUM	MLO	LJO	CBA	BRW	ALT
Observation	−3.4	−6.4	0.2	1.6	−2.2	0.7	−3.7	−1.3	−7	−7.6
CAM−SD	−5.1	−8.3	−0.2	9.9	2.7	3.2	−10.8	−1.4	−8.2	−12.1
CAMS_LMDZ	−0.6	−5.4	0.9	6.5	−1.5	1.5	−5.8	1.2	−3	−6.8
CTE_TM5	0.4	−3.4	1.4	6.6	−0.2	1.7	−9.9	−0.1	−3.3	−5.1
Jena_TM3	−1.8	−4.7	−0.4	7.1	−0.6	0.4	−5.9	0.5	−4.6	−8.2
NICAM−TM_gl5	−0.5	−6.3	1.3	5.6	0.3	4.1	−9.4	5.4	−0.5	−8.7
NICAM−TM_gl6	0.6	−4.9	2	7.1	1	5.2	−15.9	4.9	−0.3	−6.9
NIES	1.1	−2.6	1	7.1	0.2	3.3	−10.8	−1	−2.9	−5.9
MIROC4−ACTM	−0.5	−5.8	1.2	7	−0.4	4	−6.6	−0.3	−4.1	−8.9

Bias (per meg): ≥ 15, 10, 5, 0, −5, −10, ≤ −15

(b) APO Seasonal Cycle Amplitude (per meg)

	Jena									
	SPO	PSA	CGO	SMO	KUM	MLO	LJO	CBA	BRW	ALT
Observation	53	65	57	19	33	16	61	77	46	46
CAM−SD	60	77	71	21	34	33	189	103	66	57
CAMS_LMDZ	59	70	60	25	29	8	62	106	60	52
CTE_TM5	53	62	59	24	29	13	114	77	52	44
Jena_TM3	56	68	57	19	28	17	50	87	56	51
NICAM−TM_gl5	61	80	68	24	30	4	151	130	73	60
NICAM−TM_gl6	61	76	72	23	34	3	129	125	70	59
NIES	56	66	65	23	31	6	69	83	56	51
MIROC4−ACTM	61	78	76	27	38	5	157	107	81	61

	CESM									
	SPO	PSA	CGO	SMO	KUM	MLO	LJO	CBA	BRW	ALT
Observation	53	65	57	19	33	16	61	77	46	46
CAM−SD	53	75	58	19	32	32	58	78	50	49
CAMS_LMDZ	50	66	48	22	28	15	33	76	46	44
CTE_TM5	45	56	47	21	29	19	39	60	40	41
Jena_TM3	48	66	46	18	27	21	29	70	43	42
NICAM−TM_gl5	54	80	54	20	30	13	39	89	55	55
NICAM−TM_gl6	54	76	57	20	32	12	39	88	53	53
NIES	48	62	52	22	30	14	35	64	43	44
MIROC4−ACTM	54	74	60	23	34	12	47	80	56	54

	DISS									
	SPO	PSA	CGO	SMO	KUM	MLO	LJO	CBA	BRW	ALT
Observation	53	65	57	19	33	16	61	77	46	46
CAM−SD	47	49	56	17	26	26	52	72	26	25
CAMS_LMDZ	44	42	47	21	22	12	28	79	23	25
CTE_TM5	40	39	45	20	23	15	33	54	20	22
Jena_TM3	42	48	45	16	21	16	24	61	23	21
NICAM−TM_gl5	47	51	53	18	24	10	34	92	29	26
NICAM−TM_gl6	48	50	57	18	26	10	35	86	25	25
NIES	43	46	51	20	25	12	32	55	24	24
MIROC4−ACTM	49	53	59	21	27	10	43	71	34	29

Bias (per meg): ≥ 50, 25, 0, −25, ≤ −50

(c) APO Seasonal Minimum Day

	Jena									
	SPO	PSA	CGO	SMO	KUM	MLO	LJO	CBA	BRW	ALT
Observation	259	255	251	266	70	75	64	64	82	82
CAM−SD	256	254	253	266	58	64	50	63	73	82
CAMS_LMDZ	258	256	254	263	66	83	60	64	74	81
CTE_TM5	258	256	253	260	60	73	54	64	76	87
Jena_TM3	256	252	251	273	67	75	59	62	69	76
NICAM−TM_gl5	254	249	251	257	61	91	60	63	69	81
NICAM−TM_gl6	256	252	251	259	59	91	56	65	72	84
NIES	257	255	252	262	59	81	49	64	74	80
MIROC4−ACTM	257	252	250	253	66	90	58	64	71	83

	CESM									
	SPO	PSA	CGO	SMO	KUM	MLO	LJO	CBA	BRW	ALT
Observation	259	255	251	266	70	75	64	64	82	82
CAM−SD	261	253	254	270	78	80	53	62	82	83
CAMS_LMDZ	264	256	254	266	81	90	76	64	82	84
CTE_TM5	264	257	256	266	79	86	65	66	85	86
Jena_TM3	263	252	254	268	81	86	77	62	80	81
NICAM−TM_gl5	260	248	252	266	78	90	67	61	77	78
NICAM−TM_gl6	261	250	252	264	78	91	64	64	80	82
NIES	264	256	254	265	78	88	61	66	83	84
MIROC4−ACTM	263	254	253	263	80	91	70	66	77	80

	DISS									
	SPO	PSA	CGO	SMO	KUM	MLO	LJO	CBA	BRW	ALT
Observation	259	255	251	266	70	75	64	64	82	82
CAM−SD	238	234	231	228	56	57	36	60	79	72
CAMS_LMDZ	242	236	233	234	57	62	41	63	84	73
CTE_TM5	241	235	233	235	56	60	41	60	88	86
Jena_TM3	239	225	231	247	59	63	42	60	74	69
NICAM−TM_gl5	235	226	228	231	53	50	48	62	79	80
NICAM−TM_gl6	237	231	228	228	55	52	41	63	84	87
NIES	240	234	230	233	53	55	23	59	79	72
MIROC4−ACTM	239	230	233	230	59	63	54	62	71	74

Bias (days): 40, 20, 0, −20, −40