Supporting Information

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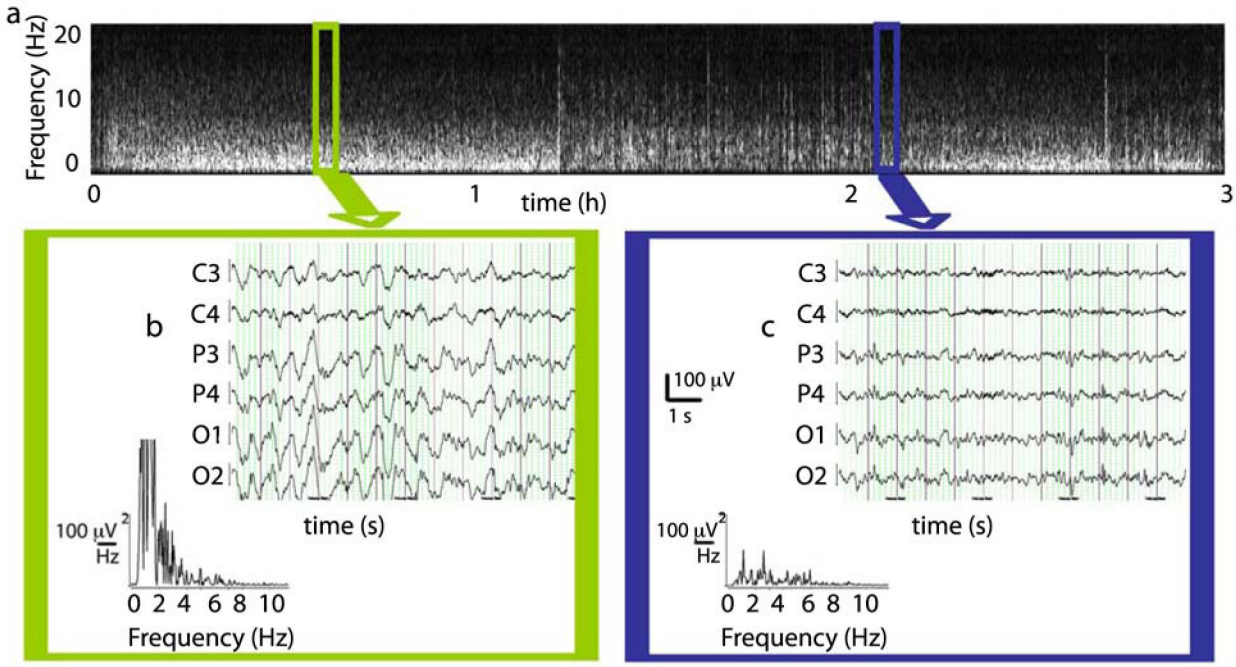

Fig. S1. Example of EEG data. (*a*) Time–frequency decomposition of the EEG (electrode C3 referenced to FCZ) for 1 subject over the 3 h of the experiment. (*b*) Time course of EEG and its spectrum during 12 s of deep sleep. (*c*) Time course of EEG and its spectrum during 12 s of light sleep.

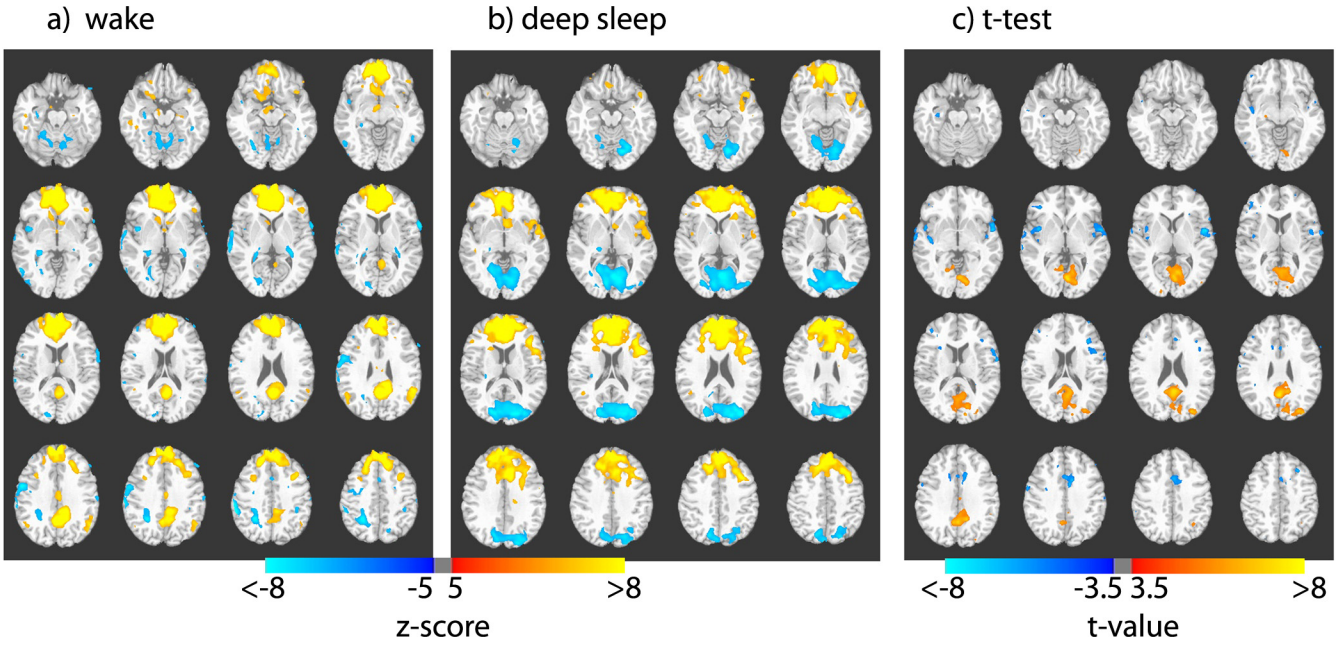

Fig. S2. DMN during wake and deep sleep. Composite maps showing correlations with MPFC/ACC during (*a*) wake and (*b*) deep sleep, and their significant difference as determined from statistical *t* test (*c*). A significant reduction of involvement of parietal regions is seen during sleep, whereas the frontal correlations are preserved. The *Z* maps in *a* and *b* are both thresholded at $Z = \pm 5.0$; The *t* map in *c* is thresholded at $t = \pm 3.5$. Both positive (yellow–red) and negative (blue) correlations are shown. *Z* values, *t* values, and Talairach coordinates of all significant clusters are reported in Tables S3 and S4.

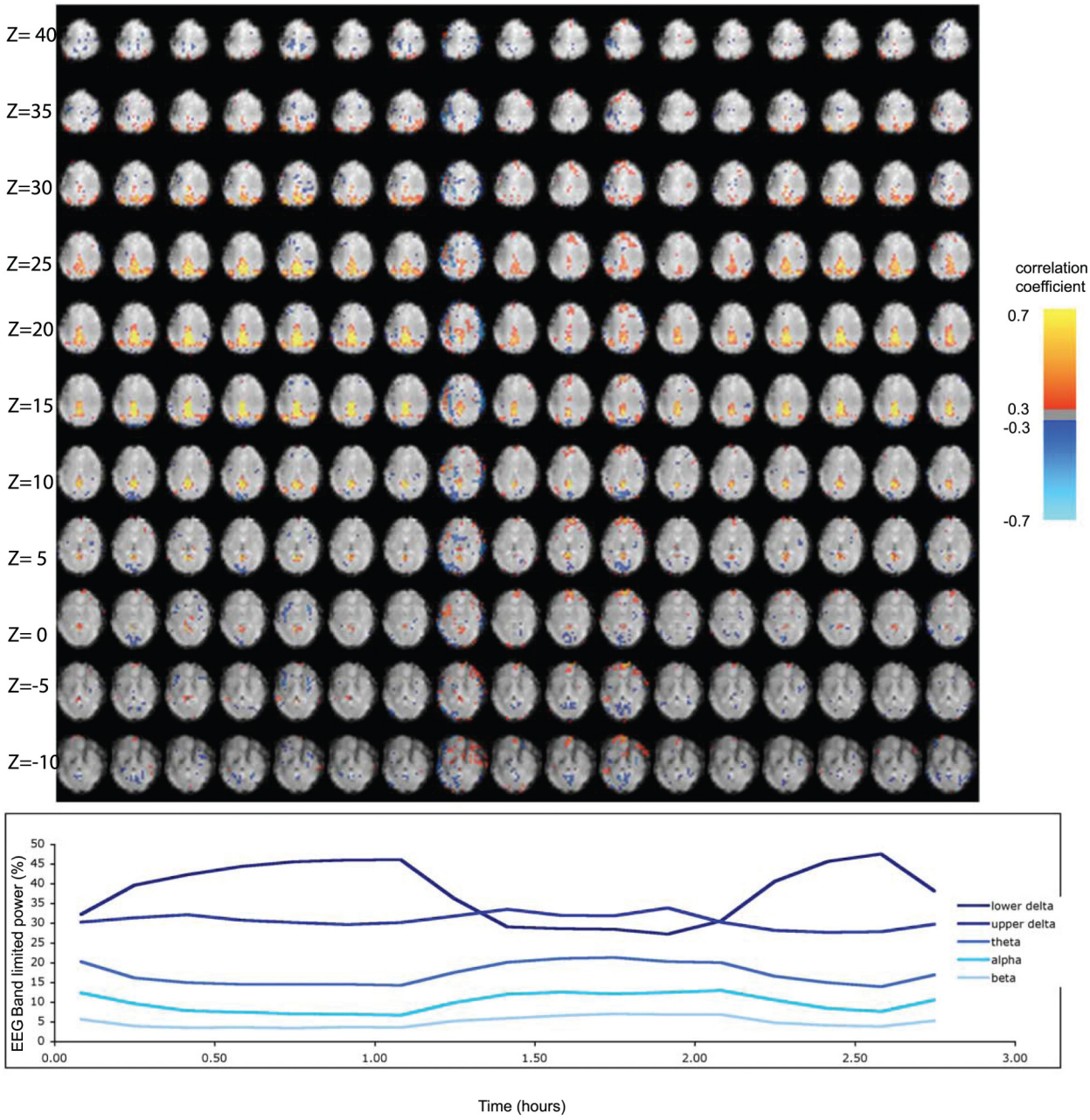

Fig. S3. Temporal evolution of connectivity within DMN at the single-subject level. (*Top*) Composite map of correlation with seed in PCC. Each image represents 10-min correlation maps. Periods of deep sleep (indicated by green bars) coincide with a reduced involvement of frontal regions. Corresponding levels of band-limited EEG activity are given in *Bottom* with the following definitions: lower delta: <2 Hz; upper delta: 2–4 Hz; theta: 4–8 Hz; alpha: 8–12 Hz; and beta: 12–20 Hz.

Table S1. Sleep structure

Subject	Total recording time (min)	Sleep efficiency (%)	Sleep in stages 2–3–4 (min)
1	40	0.00	0
2*	116	95.86	46.6
3	34	50.59	12.6
4†	140.4	91.60	106.2
5‡	83.8	62.53	16.6
6*	70.6	85.84	53.8
7†	74.8	89.04	61
8‡	69.8	87.11	53.8
9	90.5	No scores	n/a
10†	67	95.22	58
11*	103	80.00	72.2
12†	90	95.78	65
13	107	No scores	n/a
14†	49.2	82.11	31.2
15†	135	95.85	94.6
16*	128	93.44	82.4
17†	179.8	97.22	135.8
18	27.6	7.97	0

Sleep efficiency represents the amount of time the subject slept as a percentage of the total recording time. Scoring was performed in 12-s intervals [Rechtschaffen A, Kales A, eds (1968) *A Manual of Standardized Terminology, Techniques and Scoring System for Sleep Stages of Human Subjects* (U. S. National Institute of Neurological Diseases and Blindness, Neurological Information Network, Bethesda, MD)].

*Studies not included owing to imaging problems (artifacts or registration).

†Subjects included in the study.

‡Studies with not enough continuous stages 2–3–4 sleep. Sleep efficiency is defined as the fraction of the total recording that the subject spent sleeping, regardless of the sleep stage.

Table S2. Sleep structure for the 7 subjects included in the deep-sleep analysis

Subject	Wake	Stage 1	Stage 2	Stage 3	Stage 4	REM
4	8.40	12.25	35.90	25.21	14.53	3.70
7	10.96	7.49	7.22	6.95	67.38	0.00
10	4.78	8.66	82.69	3.88	0.00	0.00
12	4.22	23.56	68.22	3.56	0.44	0.00
14	17.07	19.51	30.08	28.86	4.47	0.00
15	4.15	18.22	67.41	2.67	0.00	7.56
17	2.78	15.13	38.15	29.59	7.79	6.56
Average	7.48	14.97	47.10	14.39	13.52	2.55

Values are percentage of total recording time spent at each sleep stage.

Table S3. Center of mass for voxel-by-voxel correlations with MPFC/ACC seed in wake and deep sleep

Region	Talairach coordinates			Cluster size (mm³)	Peak *Z* value
	x	y	z		
Wake ($n = 5$)					
R. medial frontal gyrus/anterior cingulate	2	45	18	74,891	22.59
L. posterior cingulate	−5	−47	27	13,891	11.11
R. pre-central gyrus	46	−13	40	7,687	−9.33
R. cerebellum	0	−53	−18	6,953	−6.45
R. precuneus/superior parietal lobule	26	−48	42	5,282	−8.24
L. supramarginal gyrus/angular gyrus	−47	−55	30	2,563	8.25
R. cuneus/BA17	19	−75	10	1,801	−6.30
R. superior temporal gyrus	62	−18	7	1,590	−7.59
R. hypothalamus	5	−8	−7	1,174	6.87
L. hippocampus/caudate	−27	−31	6	1,057	−7.03
R. parahippocampal gyrus	26	−34	3	1,038	−6.93
L. inferior parietal lobule/post-central gyrus	−39	−35	47	1,020	−6.87
L. precentral gyrus/inferior frontal gyrus	−60	7	12	975	−7.49
R. middle frontal gyrus	29	13	37	923	6.75
R. superior temporal gyrus/angular gyrus	48	−57	27	844	6.67
L. inferior frontal gyrus	−44	31	2	783	6.68
L. cingulate gyrus/BA23	−2	−14	32	776	7.33
R. insula	43	3	−1	757	−6.85
R. middle occipital gyrus/BA19	53	−61	−3	610	−6.77
R. fusiform gyrus	29	−63	−9	435	−6.41
R. inferior/middle temporal gyrus	48	−33	−13	333	5.82
L. inferior/middle temporal gyrus	−50	−52	−4	315	−6.03
L. superior/middle frontal gyrus	−16	4	56	302	−6.17
R. parahippocampal gyrus/hippocampus	30	−18	−15	298	−6.21
L. post-central gyrus/BA3	−59	−18	34	294	−6.06
L. precuneus/superior parietal lobule	−13	−66	45	287	−6.25
L. inferior frontal gyrus	−37	17	−10	284	7.00
Deep sleep ($n = 7$)					
L. anterior cingulate/medial frontal gyrus	−4	39	21	111,589	20.67
L. cuneus/BA18	−7	−70	16	66,048	−8.59
L. insula	−43	5	−2	5,500	7.33
R. postcentral gyrus	22	−33	56	1,551	−6.30
R. inferior frontal gyrus (O)	47	40	0	383	6.09
R. inferior frontal gyrus (T)	49	27	12	328	7.30
R. thalamus	20	−26	2	276	−6.25
R. pre-central gyrus	36	−17	55	259	−6.02

Threshold $Z = \pm 5$, cluster 250 voxels ($1 \times 1 \times 1$ mm³).

Table S4. Center of mass for voxel-by-voxel *t* test between wake and deep sleep maps of correlations with MPFC/ACC seed

Region	Talairach coordinates			Cluster size (mm^3)	Peak *t* value
	x	y	z		
Areas significantly more correlated with MPFC/ACC during wake (positive *t* values)					
L. posterior cingulate	−4	−61	16	18,407	7.50
L. middle/superior occipital gyrus	−29	−79	24	1,436	7.26
R. paracentral lobule/BA6/BA4	4	−33	64	538	6.07
Areas significantly more correlated with MPFC/ACC during deep sleep (negative *t* values)					
L. superior temporal gyrus	−50	1	3	2,276	−8.53
L. anterior/middle cingulate gyrus	−5	11	36	2,213	−6.06
L. inferior frontal gyrus (O)	−52	6	16	1,144	−6.31
R. insula	43	0	4	1,064	−5.94
	41	−12	−2	506	−6.02
R. superior temporal gyrus	63	−7	1	677	−5.78
L. inferior/middle frontal gyrus	−35	26	19	379	−5.56
R. middle frontal gyrus/BA10	41	41	14	318	−6.17

Threshold $t = \pm 3.5$, cluster 250 voxels ($1 \times 1 \times 1$ mm^3).