

From a large number of files generated by the Grass Gamma Software (8/24/2000 -- 10/16/2009) and the Twin software (10/28/2009 -- present) the following data was extracted by programs and loaded into the database:

Note: epochs are 30 seconds long

There is one CLASS_AHI record for each polysomnographic study done.

CLASS_AHI	
SUBJ_ID	
VISIT_NUMBER	
TESTDATE	date when recording started possibly day after sleep_lab_date
AHI3	Apnea-Hypopnea 3 percent Index (per hour): ((number of 3 percent hypopneas + apneas)/total_sleep_time)* 60
AHI4	Apnea-Hypopnea 4 percent Index (per hour): ((number of 4 percent hypopneas + apneas)/total_sleep_time)* 60
TST	Total Sleep Time (Time in minutes subject in sleep stages 1,2,3,4,or 5)
DESATS	Number of Desaturations (One for every hypopnea or apnea).
APNEAS	Number of unclassified,Central,Mixed or Obstructive Apneas
HYPOP3	Number of Hypopneas with desat >= 3 percent
HYPOP4	Number of Hypopneas with desat >= 4 percent
HYPOP_LOW	Number of Hypopneas with desat < 3 percent should be zero.
CENTRAL_APNEAS	Number of Central Apneas
MIXED_APNEAS	Number of Mixed Apneas
OBS_APNEAS	Number of Obstructive Apneas
SLEEPTIME	(Total number of epochs of sleep stage 1,2,3,4,5)/2 minutes should equal tst
NREM_MI	NonREM minutes of sleep: (Total number of epochs of sleep stage 1,2,3,4)/2 minutes)
REM_MI	REM minutes of sleep: (Total number of epochs of sleep stage 5)/2 minutes)
SLOW_WAVE_MI	Slow Wave minutes of sleep: (Total number of epochs of sleep stage 3 and 4)/2 minutes)
STAGE0_MI	(Total number of epochs of stage 0)/2 minutes (Wake within study period)
STAGE1_MI	(Total number of epochs of stage 1)/2 minutes
STAGE2_MI	(Total number of epochs of stage 2)/2 minutes
STAGE3_MI	(Total number of epochs of stage 3)/2 minutes
STAGE4_MI	(Total number of epochs of stage 4)/2 minutes
STAGE5_MI	(Total number of epochs of stage 5)/2 minutes
STAGE6_MI	(Total number of epochs of stage 6)/2 minutes (excessive movement)
STAGE7_MI	(Total number of epochs of stage 7)/2 minutes (awake and up)
LMS	Total number of Leg Movements

LMAS	Total number of Leg Movement-Arousals
PLMS	Total number of Periodic Leg Movements (periodic legmovements are legmovements that conform to periodic requirements)
PLMAS	Total number of Periodic Leg Movement-Arousals (periodic leg movement arousals are legmovents that conform to periodic requirements and also happen to have associated arousals. (Both Legmovements and Legmovement Arousals are treated as legmovements for peridoc checks)
RECORDING_START	Date Time recording started
TOTAL_RECORDING_TIME	Date Time recording ended
FIRST_STAGE_EPOCH	The epoch number of the first epoch of sleep stage 0-5
NUMEPOCHS	Number of epochs from the first epoch of sleep stage 0-5 to the last epoch of 0-5
LIGHTSOUT	Date Time Lights turned off, from the Grass db file
LIGHTSON	Date Time Lights turned on, from the Grass db file
AHI4_ADJUSTED	Statistical adjustment applied to ahi formula
PLM_INDEX	Periodic Leg Movement Index (per hour): ((PLMs + PLMAs)/tst) * 60
SLEEP_LAB_DATE	Date sleep study scheduled
LM_INDEX	Leg Movement Index (per hour): ((LMs + LMAs)/tst) * 60)
PLM_PERIOD_MIN	Minimum period (seconds) between periodic leg movements (cannot be < 5 seconds)
PLM_PERIOD_MAX	Maximum period (seconds) between periodic leg movements (cannot be > 90 seconds)
PLM_PERIOD_MEAN	Avg period (seconds) between periodic leg movements
PLM_PERIOD_MEDIAN	Median period (seconds) between periodic leg movements
PERIODICITY_INDEX	Count of all in Leg Movement series with an interval length >10 and length <= 90 seconds that were proceeded by and followed by another interval of same length. Then divided by the total number of intervals. See <i>New Approaches to the Study of Periodic Leg Movements During Sleep in Restless Legs Syndrome</i> Ferri et al SLEEP, Vol 29, No 6, 2006
PLM_INDEX_NREM	((Count of Periodic Leg Movements in NonREM) * 60)/(minutes subject was in NonREM sleep stage)
PLM_PERIOD_NREM_MEAN	Avg period (seconds) between periodic leg movements in NonREM
PLM_INDEX_REM	((Count of Periodic Leg Movements in REM) * 60)/(minutes subject was in REM sleep stage)
PLM_PERIOD_REM_MEAN	Avg period (seconds) between periodic leg movements in REM
PLM_INDEX_SLOW_WAVE	((Count of Periodic Leg Movements in Stage 3 and 4) * 60)/(minutes subject was in stage 3 and 4 sleep stages)
PLM_PERIOD_SLOW_WAVE_MEAN	Avg period (seconds) between periodic leg movements in Stages 3 and 4

There is one record for each scored 30 second epoch in a study.

GRASS_STAGES

SUBJ_ID	The unique primary key of this table is subj_id,visit_number,epoch
VISIT_NUMBER	
EPOCH	Epoch numbers start from 1 when recording starts
EPOCH_DATE	Date and time of the start of this epoch
STAGE	Sleep Stage 0,1,2,3,4,5,6,or 7 (0 and 7 are wake, 6 is excessive movement.)
POSITION	(from log recorded by Technician watching monitor. F front/prone, L left, R right, B back/supine. Note position is the last position recorded before or at the start of the epoch.
EKG	Avg heart rate as saved by Grass software in EKG record for that epoch. EKG file was often missing.
OXI_MEAN	Avg oxygen saturation as saved by Grass software in the OXI record for that epoch. OXI file was often missing.
OXI_MIN	Min oxygen saturation as saved by Grass software in the OXI record for that epoch. OXI file was often missing.
OXI_MAX	Max oxygen saturation as saved by Grass software in the OXI record for that epoch. OXI file was often missing.
PROBLEM	Comments about data problems
MINUTES_FROM_LO	Minutes from Lights Out

There is one event record saved for each scored event in a polysomnogram. Events scored were apneas,hypopneas,leg movements, and leg movement arousals. For apneas and hypopneas,a desaturation event was also recorded. When the data was processed, a program merged the desat matched to an apnea or hypopnea with that apnea or hypopnea record, for data analysis convenience. The desat record also appears as an separate event record.

Joining events to stages should be done on subj_id,visit_number and epoch

GRASS_EVENTS	
SUBJ_ID	The unique primary key of this table is subj_id,visit_number,seqno
VISIT_NUMBER	
SEQNO	To get event records in time order, order by subj_id,visit_number,seqno (multiple events can occur in the same epoch and even at the same time
EPOCH	Epoch numbers start from 1 when recording starts. More than one event can start in the same epoch
EVENT_START	Date and time of the start of this event
EVENT_TYPE	A arousal(scored for short time only), AP unclassifiable Apnea (rare), B Snore (rarely scored), CA Central Apnea, D Desaturation, H Hypopnea, L Legmovement that was not periodic, LA Legmovement arousal that was not periodic, MA Mixed Apnea, OA Obstructive Apnea, PL Periodic Leg Movement, PLA Periodic Leg Movement Arousal, RA Respiratory Arousal (rarely scored) Note that PL events are also L events and PLA events are also LA events
EVENT_VALUE	In the case of apneas, hypopneas, and desaturations this column is the minimum SAO2 saturation during the event. For legmovements, this is a sequence number assigned for debugging purposes.
EVENT_DURATION	Duration in seconds of the event
EVENT_END	Date time of the end of the event (A convenience item as it could be calculated from event_start + event_duration)

EVENT_STAGE	Sleep stage from the Grass_stages epoch (see Grass_stages)
EVENT_POSITION	Position from the Grass_stages epoch record (see Grass_stages)
DESAT_START	If this event is an apnea or hypopnea, this column is the start date time of the accompanying desaturation.
DESAT_VALUE	The lowest oxygenation level reached during the desaturation.
DESAT_PERC	Percentage of the desaturation.
DESAT_DURATION	Length of time in seconds of the desaturation.
PERIOD	If this is a legmovement or legmovement arousal that is part of a periodic sequence, this is the seconds from the previous periodic legmovement if there is one.
PREV_LM_PERIOD	If this is a legmovement or legmovement arousal that is part of a periodic sequence, this is the seconds from the previous periodic legmovement if there is one.(currently same as Period)
NEXT_LM_PERIOD	If this is a legmovement or legmovement arousal that is part of a periodic sequence, this is the seconds until the upcoming periodic legmovement if there is one.
MINUTES_FROM_LO	Minutes since Lights Out