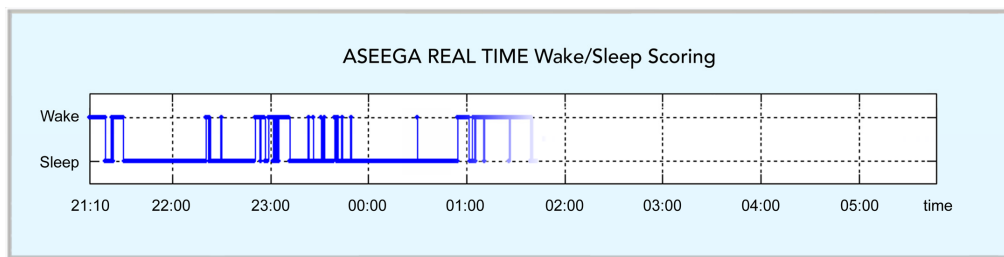


# Aseega RealTime

*Sleep Diagnostic-Aid Software*



*Screening sleep disorders.*

- Real time wake/sleep scoring
- Single channel

Clinically validated

Highly reliable

PHYSIP  
6, rue Gobert  
75011 Paris, France  
+33 1 42 17 00 10  
aseega@physip.fr  
www.physip.fr



*Physiological Signal Processing Research*

## Overview

- Enables real-time AHI calculation
- Reduces clinician/technician workload
- Increases diagnosed population



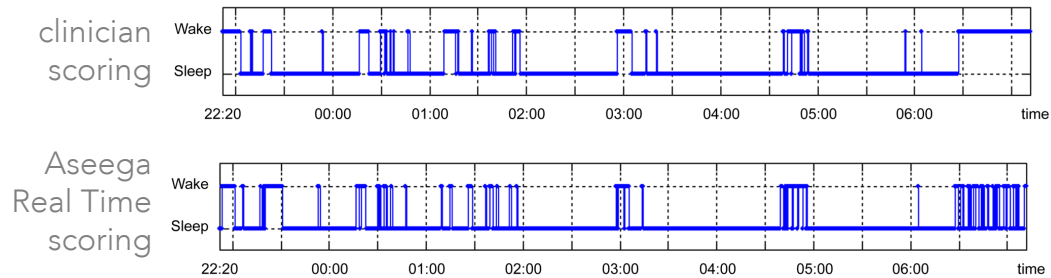
- Single channel analysis (EEG)
- Automatic unsupervised staging
- Based on 35 years of research

## Applications

- Split night protocol automatization indicates when patient has slept for 2h
- Real time sleep state monitoring

# Aseega technology

Aseega autoadaptive algorithm combines multiple advanced signal processing technologies based on time-scale analysis and fuzzy logic



## Sleep studies

### Aseega now used in sleep research

[Science 2009 Apr 24; 324 \(5926\):516-9](#)

Part of this neuroscience study involved sleep scoring. Aseega, used as a fully automated scoring tool, enabled the exclusion of a bias resulting from possible visual scoring subjectivity

### Aseega real time validation: wake/sleep

Validation on 54 OSA patients: Results showed an agreement of 90.4 % in the sleep-wake classification task. Cohen's kappa coefficient reached 0.74

[Sleep 2008, Vol 31 \(suppl.\):A338](#)

### Aseega real time validation: split night

Validation on 60 OSA patients: ASEEKA Real Time can indicate when a patient has slept at least 2h with 95% confidence compared to a manual scoring

[Chest 2007;132\(4\) \(Suppl.\):649S](#)

### Aseega offline validation

[Sleep 2007;30\(11\):1587-95.](#)

[Journal of Sleep Research 2006;15\(Suppl 1\):P295](#)

# History

Aseega Technology is an extension of the work initiated by Odile Benoit and Jacques Prado (Le Roux 86, Bouard 86), who proposed a semi-automatic approach for the analysis of all-night sleep, based on a single EEG channel. At that time, this signal was recorded using a research prototype.

This semi-automatic method was routinely applied for 12 years by Benoit et al. to more than 500 recordings, including hypnotic pharmacological trials (Benoit 94, Daurat 97). Their work successfully demonstrated that scoring sleep from a single EEG channel is possible, although challenging.

This single channel method was used as a starting point for Christian Berthomier's PhD thesis in signal processing. His work, supervised by J. Prado in collaboration with Dr. O. Benoit, formed the basis of an automatic method to process sleep EEG recorded under laboratory conditions (Berthomier 99).

Since 2001, the research and development work carried out by the Physip Company, directed by C. Berthomier, has led to Aseega Technology. Aseega provides a fully automatic analysis of the EEG signal delivered by recording devices routinely used in sleep centers. The clinical validation of Aseega was successfully performed on 15 healthy subjects in 2005 and on 15 patients in 2006 (Berthomier 06, 07). The latest developments achieved real time scoring (Berthomier 08).

Aseega is now being used in sleep linked research domains (Schmidt 09, Van Beers 09).

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