



asa-lab™: turnkey solution for ERP research

Psychological research on the basis of event-related potentials is a key source of information to uncover the highly dynamic relations between cortical brain regions.

asa-lab™ provides you with a turnkey solution to explore the brain's reaction to a particular experimental paradigm within minutes! With asa-lab ANT offers a complete system for acquisition, stimulation and analysis for cognitive neuroscience that meets with all basic and advanced lab requirements.



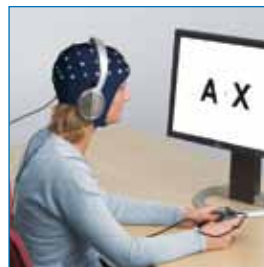
xensor™: 3D electrode digitizer

asa-lab can be extended with a 3D electrode digitizer system to acquire, visualize and store the positions of the scalp electrodes. The resulting xyz-information is required to further improve the result of EEG source localization. **xensor** takes care of the electrode digitization procedure and uses advanced a 3D infrared camera for real-time tracking with exceptional accuracy. **xensor** is the most professional addition to facilitate exact digitization of scalp electrodes.



eevoke™: exciting stimulation!

A major challenge in brain research is to develop intelligent experimental paradigms that match your theoretical model. **eevoke** provides you with a dedicated tool rather than just another programming language to deal with the composition of your multimedia scenario. This MS-Excel® based experiment generator brings even the most complicated paradigm down to a manageable structure. Behavioral analysis of subject responses is fully integrated in this environment. Once you are finished with the design, our integrated eevoke stimulation package will run it with precision timing.



ANT: the positive impulse to improve your results

To help you with your research and applications ANT develops flexible products that seamlessly fit together. Add good support and special services: ANT is the perfect partner in cognitive neuroscience!

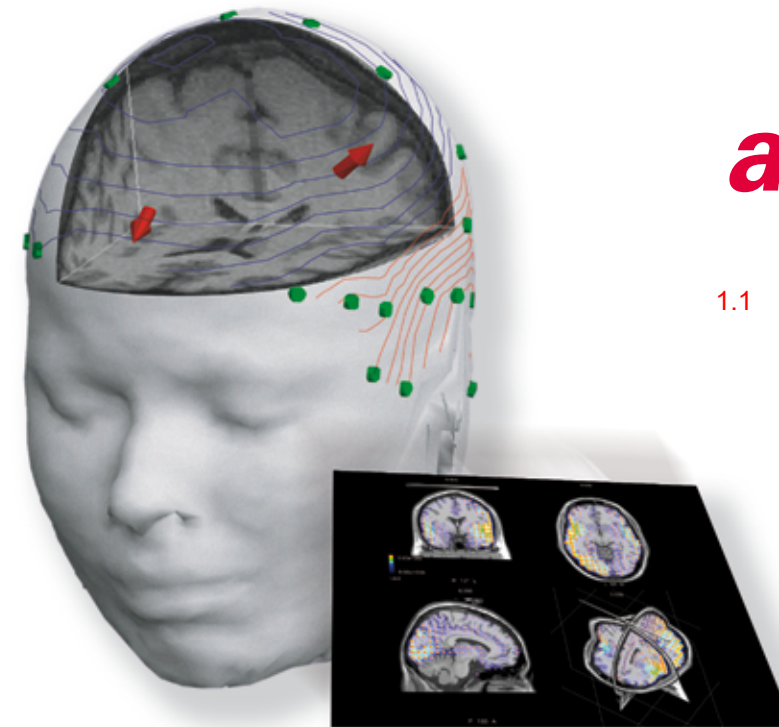
Advanced Neuro Technology (ANT) was founded in 1996. The activities of ANT are dedicated to the development of systems for recording and analysis of neurophysiological signals in neurological, psychological, physiological research and related clinical applications. ANT is specialized in delivering high quality and user-friendly systems that meet the standards set by modern research. ANT is an innovative company with a specialized and strong scientific staff. ANT benefits from the scientific know-how gained through many years of research at

Twente University (Netherlands), the Max Planck institute for Cognitive Neuroscience (Germany) and other scientific organizations.

The development of **ASA™** commenced in 1993 and was made commercially available in 1996 through ANT. Since that time ANT has continued the development of different products to be used in both research and clinical fields. Its products are used in many laboratories worldwide and offered both directly or through our distributor network. ANT actively supports and contributes to research projects. ANT frequently organizes workshops to provide training and services to our users and to communicate future developments with the participants.

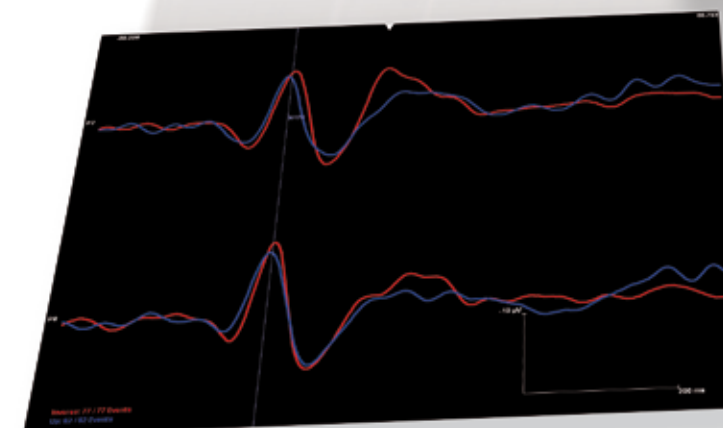
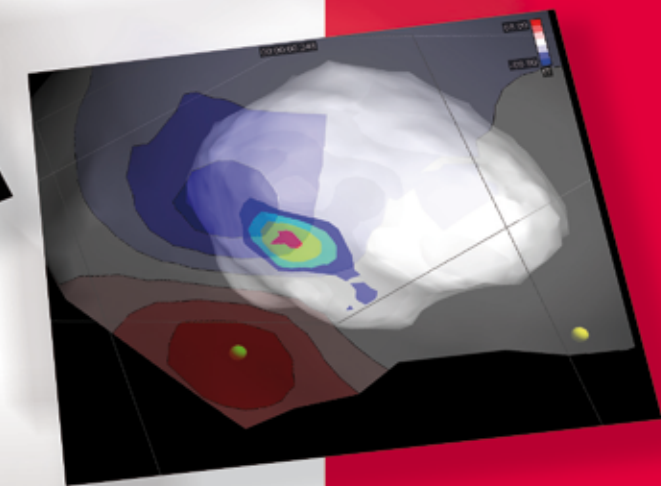
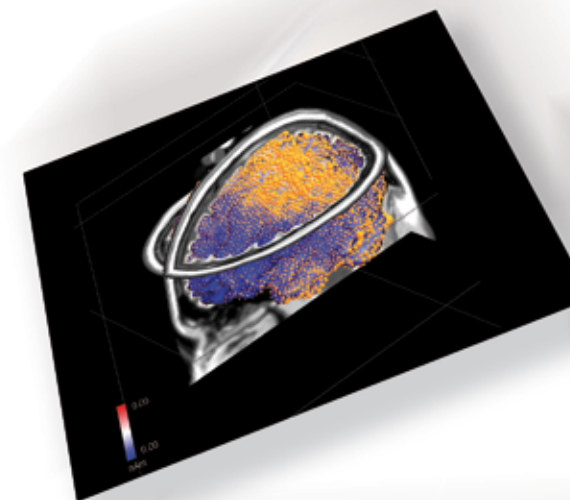


advanced source analysis



1.1

asa advanced source analysis



asa: advanced source analysis

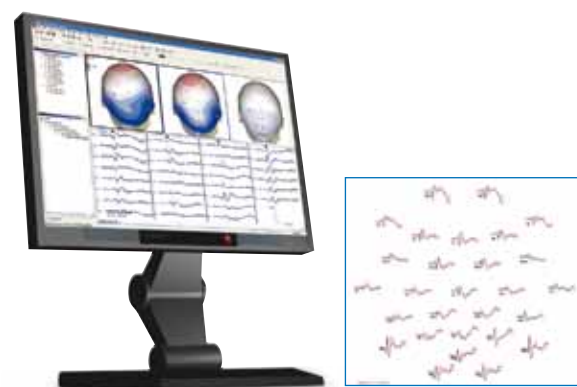


- 1.2 **ASA™ is a highly flexible EEG/ERP and MEG analysis package with a variety of source reconstruction, signal analysis and MRI processing features. ASA combines functional brain imaging with the** 1.4b, 1.4c
- 1.3 **visualization and incorporation of morphological information obtained from MRI or CT. ASA is a** 1.5
- highly interactive and flexible software tool that can be applied to neuro-physiological and clinical brain research.**

ASA gives a realistic impression of your experimental configuration together with topographical mapping of EEG and MEG and the results of your analysis. ASA is developed for and by people dedicated to brain research. The concept of flexibility and openness covers even most complex analysis demands. The ASA environment is particularly attractive for those that wish to develop their own methods in third party packages like Matlab™ and use ASA for pre-processing and visualization purposes.



EEG review with video and spectral maps



Average waveforms and 3D mapping

Features

Pre-processing

- EEG/MEG review capabilities, support of most EEG and MEG file formats. Paging, scrolling, event marker review, different editable montages, filters
- Compressed display (minutes and hours of recording in one page) and compressed spectral density array (CDSA)
- MRI import (DICOM, Analyze, Nifty, ASA) and review of images
- Full support of event information, easy navigation through events in the data
- 3D EEG/FFT mapping completely synchronized with EEG and event table
- Automation via scripting (VB, VBA, Javascript, Matlab, COM support)

EEG/ERP Signal conditioning

- Filtering, artefact detection, baseline correction, detrending, data template subtraction for artefact removal, grand averaging
- EOG artefact correction based on blind source separation (SOBI)
- (Grand) averaging over multiple conditions
- Interpolation of bad channels
- 3D Current Source Density (CSD, surface Laplacian) mapping
- Event-Related Desynchronization (ERD) based on band pass filtering and Hilbert transform
- Data export in various formats such as ASA, ASCII and extended EDF format

Time-frequency analysis

- Coherence mapping and phase analysis, based on FFT and wavelets, with display of amplitude and phase coherence in adjustable frequency bands by means of arrow plots
- 3D FFT mapping and spectral analysis, adjustable to specific requirements, with comparison of groups vs. single subject spectra
- Event-related/EEG wavelet analysis and wavelet mapping

Source reconstruction 1.4a

- Multiple spatio-temporal dipole modeling
- MUSIC (multiple signal classification)
- LORETA (low resolution tomographic analysis)
- sLORETA and swLORETA
- Cortical imaging
- True 3D reconstruction in frequency domain
- Forward simulation of EEG and MEG

MRI and head modeling

- Automatic segmentation of MRI/CT data
- Generation of realistically shaped head models based on Boundary Element Method (BEM)
- Standardized MRI, head models and electrode configurations for all methods, EEG and MEG
- Transformation to Talairach system

Advanced signal conditioning

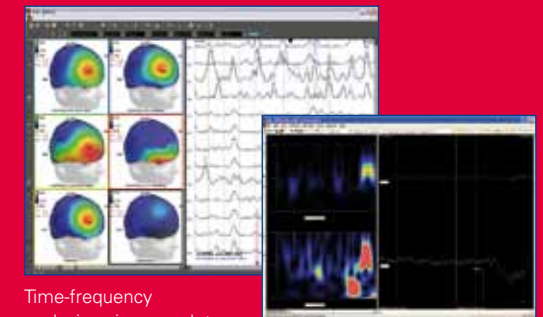
- TMS artefact correction for mono- and biphasic magnetic pulses
- fMRI gradient and pulse artefact removal
- Group analysis and statistics with the ASA Experiment Manager

Recording options and real-time processing

- Synchronized high quality video recording (MPEG4, MPEG2 and others)
- Real-time access to EEG recording (even over local area network)
- Toolbox for brain-computer interface (BCI) and neuro-feedback
- Online trigger statistics, artefact detection and averaging

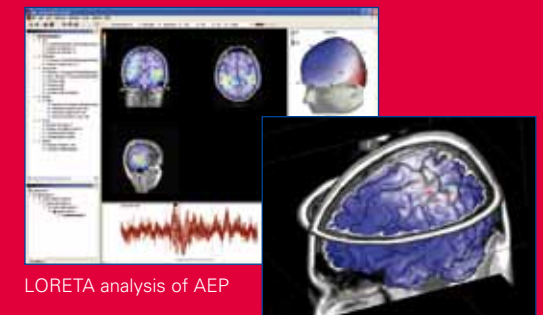
Integration with third-party programs

- Online and offline automated interaction with programs such as Matlab® and other advanced analysis packages
- Library of Matlab functions for data import/export
- COM interface for advanced scripting



Time-frequency analysis using wavelets

Spectral analysis of ERP

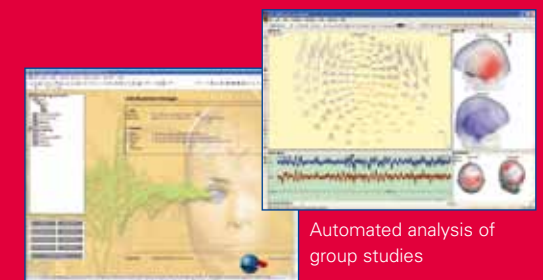


LORETA analysis of AEP

Cortical imaging

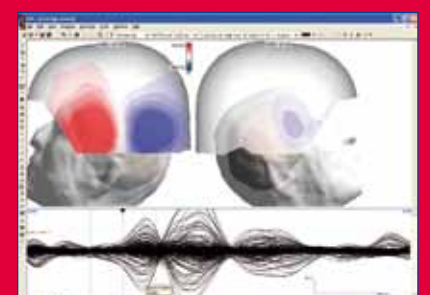


MRI segmentation and transformation to Talairach coordinates



Experiment manager

Automated analysis of group studies



MEG mapping