

TAMS in Japanese version has so far been developed. English version is coming later.

System requirements

OS: Windows NT 4.0/ 98 or upper

Software: MS Excel 97

Highlights:

- Evaluation Flow
- Analysis
- Fracture Criteria
- Data Analysis & Automatic Summary Maker
- Output in Excel Format



The Second Shiraito Tunnel accident

Tobishima AE Data Management System

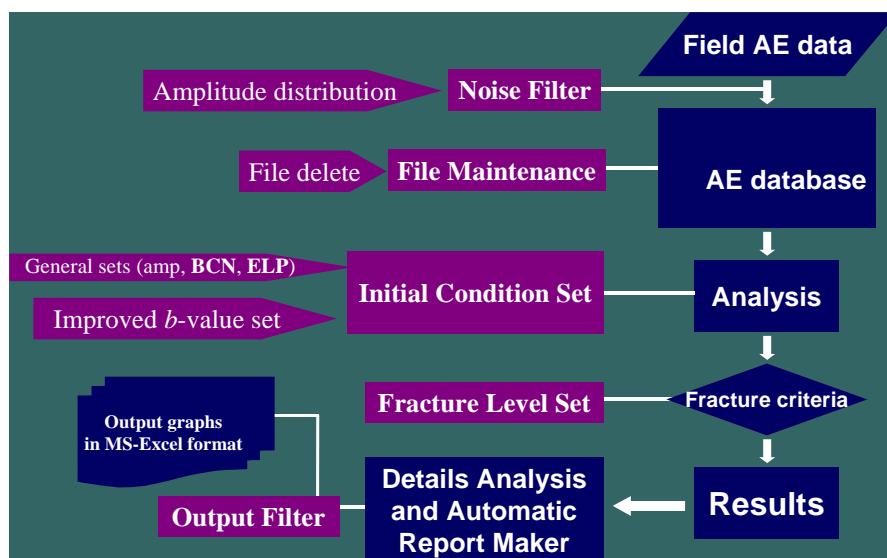
for WEAD

TAMS, Tobishima AE Data Management System, is developed for processing continuous AE data for rock failure monitoring. TAMS has a potential for versatile applications not only in rock slide, but concrete structures, steel structures, composite structures...

On the TAMS, sophisticated AE data proc-

essing procedure is automatically implemented. Long term monitoring-oriented functions: Noise filter (based on amplitude distributions), BCN (Based Count Number), and ELP (Evaluation Lockout Period) are imported into the TAMS. Fracture levels giving a variety of alerts can be set by the engineer. Even for naissance summary charts for the report, WEAD can be drawn.

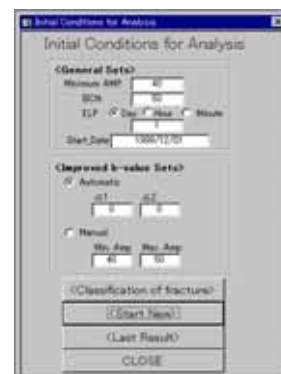
Evaluation Flow



Evaluation flow

Analysis

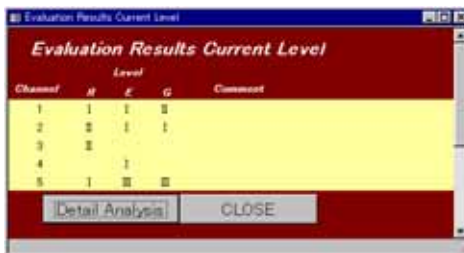
To launch TAMS analysis, initial condition should be first set. For general condition, evaluation-threshold level, BCN (Based Constant Number) and ELP (Evaluation Lockout Period) are to set. In TAMS, user can analyze AE data on the basis of revised threshold. Not only classical AE parameters, but original parameters: improved *b*-value and grade, are computed as a group based theory set by BCN. To distinguish approaching dangerousness in real time from spreading local fracture at discrete time, a ELP concept is developed.



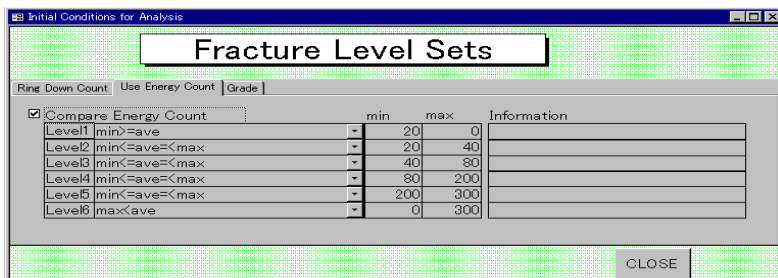
Initial condition

Fracture Criteria

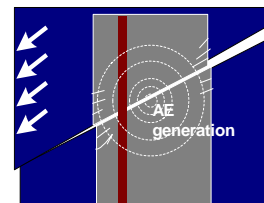
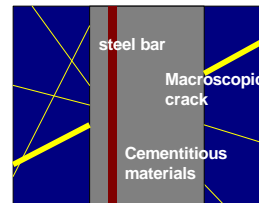
On TAMS, users can give the original fracture criteria. Combining with the WEAD, original fracture criteria can be defined experimentally in advance of AE monitoring. Ring-down count, energy and grade are employed to classify fracture levels. Using the user-defined criteria, evaluation results are obtained.



Evaluation results



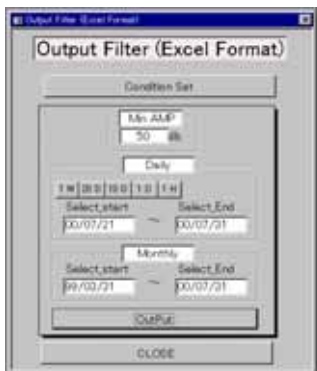
Set of fracture levels



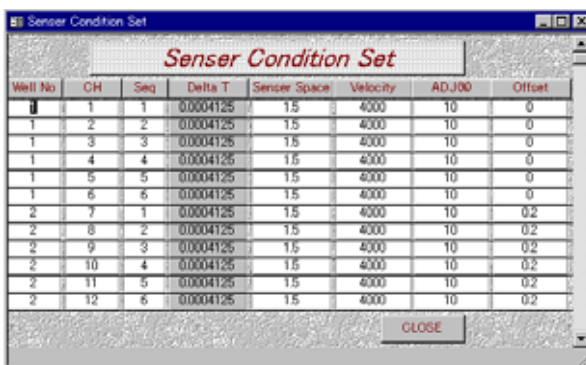
Behavior of WEAD under deformation of rock

Details Analysis & Automatic Summary Maker

To make a report daily, monthly, yearly or of user-defined periods, the TAMS has a function of automatic summary maker. The summary is made by the TAMS based on the user-defined output filter. In the output filter, objective AE data is extracted based on the evaluation threshold level and period of time, followed by source location calculation .

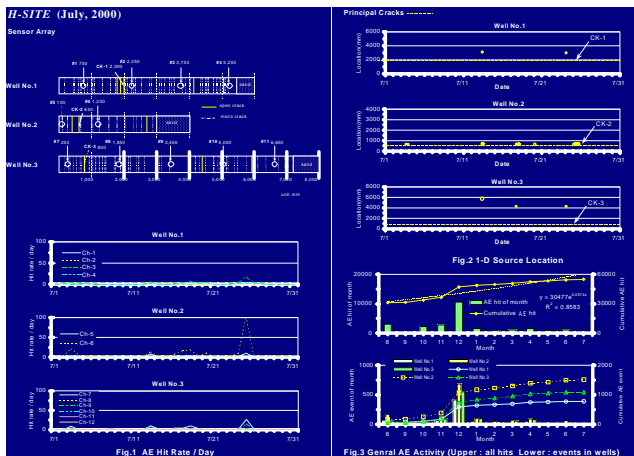


Output filter



Set of sensor condition

Output in MS-Excel Format



Example of output

Even for a nuisance summary charts, WEAD can be automatically drawn.



TAMS applied monitoring sites

Basically, monthly AE activity is first summarized as in the left figure. AE sources obtained can be examined with actual joint condition. Further analysis of AE data is performed with using an appropriate smoothing processor . Also in the TAMS, an approximation technique is implemented to predict eventual failure.

More information is available with contacting:

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