OASES - Software for Modeling Seismo-acoustic Propagation in Horizontally Stratified Waveguides
Technology #7549

Technology

OASES is a general purpose computer code for modeling seismo-acoustic propagation in horizontally stratified waveguides using wavenumber integration in combination with the Direct Global Matrix solution technique. It is basically an upgraded version of SAFARI, distributed by SACLANTCEN (now NURC). It has the following advantages:

- The model provides a full wave solution for the field generated by a single source as well as for that generated by a vertical source array.
- It allows the spatial distribution of the acoustic field to be evaluated at least one order of magnitude faster than with existing models based on the Thomson–Haskell solution technique.
- The computational efficiency of the numerical code is demonstrated by providing exact numerical solutions for the reflectivity pattern associated with narrow ultrasonic beams incident on a fluid–solid interface near the Rayleigh angle.


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A full version of OASES includes the extension to laterally in homogeneous stratifications, 3D seismic sources, the embedded signal processing modules, etc. As of January 1999, there is a new OASES 3-D program which is independent software and can be run without purchasing the earlier non-gov funded OASES range dependent version.

You can license the OASES total package, OASES only, or OASES 3D only program.

Four types of licenses are available for OASES total package:

- Commercial License
- License to Academic Institution (Research and Educational purpose)
- License to US Government Contractor
- License to US Government Agency

In addition, commercial license is available for OASES only and OASES 3D only programs.

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**Categories For This Invention:**

- Software (Copyright)
- End Use Software

**Intellectual Property:**

Provisional

**Inventors:**

Henrik Schmidt

**Publications:**

- A Full Wave Solution for Propagation in Multilayered Viscoelastic Media with Application to Gaussian Beam Reflection at Fluid–So
- The Journal of the Acoustical Society of America
  Vol. 77, p. 813 (1985)

**External Links:**

- OASES Technical Information
- Acoustics Group
  [http://acoustics.mit.edu/](http://acoustics.mit.edu/)
- The Laboratory for Autonomous Marine Sensing Systems (LAMSS)

**Image Gallery:**