

## **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.

The OASES Base (Export) Package can be downloaded via anonymous svn/http from the MIT LAMSS repository at <http://lamss.mit.edu/lamss/pmwiki/pmwiki.php?n=Site.Oases>.

### **Ready to Sign License Available**

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

Please visit our Ready to Sign instructions [page](#) to learn how to request a license. The two types of licenses available for OASES and their respective costs include the following (please click on either type below to download the license as a fillable PDF):

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### **Categories For This Invention:**

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## 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

<http://lamss.mit.edu/lamss/pmwiki/pmwiki.php>

Acoustics Group

<http://acoustics.mit.edu/>

The Laboratory for Autonomous Marine Sensing Systems (LAMSS)

<http://lamss.mit.edu/lamss/pmwiki/pmwiki.php>

## Image Gallery:

