| EGU.eu | | EGU Journals | Contact |

- Home
- Online Library
  - Recent Papers
  - Volumes
  - Library Search
  - Title and Author Search
- RSS Feeds
- General Information
- Submission
- Review
- Production
- Subscription

ARCHIVED IN

PORTICO

Towards an analytical understanding of internal wave attractors

U. Harlander
Department of Aerodynamics and Fluid Mechanics, Brandenburg University of
Technology (BTU) Cottbus, Siemens-Halske-Ring 14, 03046 Cottbus, Germany

Abstract. Time harmonic inviscid internal wave motions constrained to fully closed domains generically lead to singular velocity fields. In spite of this difficulty, several techniques exist to solve such internal wave boundary value problems. Recently it has been shown that for a domain with the shape of a trapezium, solutions can be written in terms of a double sine Fourier series. However, the solutions were found by a numerical technique and thus not all coefficients of the series are available. Unfortunately, for questions related e.g. to regularization of the inviscid {\em singular} solutions, the knowledge of the asymptotic behavior of the spectrum for large wave numbers is essential. Here we discuss solutions of internal wave boundary value problems for which the spectra are known, at least asymptotically. We further describe shortcomings of the found solutions that need to be overcome in the future. Finally, we sketch applications of the solutions in the context of viscous energy dissipation.

Full Article in PDF (PDF, 2040 KB)

Citation: Harlander, U.: Towards an analytical understanding of internal wave attractors, Adv. Geosci., 15, 3-9, 2008.   Bibtex   EndNote   Reference Manager

Copernicus Publications
The Innovative Open Access Publisher

Search ADGEO

Library Search

Author Search

News

- New Tax Regulation for Service Charges

Recent Papers

01 | ADGEO, 27 Jan 2010: Recent variation of the Las Vacas Glacier Mt. Aconcagua region, Central Andes, Argentina, based on ASTER stereoscopic images

02 | ADGEO, 17 Dec 2009: First insights on Lake General Carrera/Buenos Aires/Chelenko water balance

03 | ADGEO, 17 Dec 2009: A Terrestrial Reference Frame (TRF), coordinates and velocities for South American stations: contributions to Central Andes geodynamics