Introduction

This brochure is a brief overview of Interpex' geophysical processing, presentation, and interpretation software, organized by method. For most methods, modeling packages offer forward and/or inverse modeling to match synthetic responses to field data. All feature a menu system and interactive graphics to allow the user to visualize the data and the results during the interpretation process. The required operating system is designated as **Windows, Shareware** or **DOS**.

1-D Electrical & Electromagnetic Modeling

IX1D v3 (Windows)
IX1D v 3 replaces many of our DOS software packages, including EMIX 34, EMIX 34 Plus, EMIX MM, EMIXMM Plus, EMIX MT, RESIX, RESIX Plus, RESIX IP, TEMIX and TEMIX XL. A lighter version, **IX1D v 2 (Shareware)**, replaces EMIX 34, EMIX MM EMIX MT, RESIX, RESIX Plus and RESIX IP.

Frequency ElectroMagnetics

EMIX 34 Plus v3 (DOS) (Replaced by IX1D v 2 & 3)
EMIX 34Plus is designed for the interpretation of EM conductivity data acquired with the Geonics Ltd. EM-31, -34 & -38 or similar instruments. Forward and Inverse modeling on individual soundings yields 1D models displayed in profile form.

EMIX MM Plus v3 (DOS) (Replaced by IX1D v 2 & 3)
EMIX MMPlus uses forward and inverse modeling to interpret EM data acquired with instruments such as the SCINTREX EM-4 GENIE/HLEM, Geophex GEM-2 or APEX MAX-MIN systems in terms of 1-D layered earth models and thin plate conductors.

IXVLF v1 (Shareware)
IXVLF is a graphic analysis tool for VLF data. Options include display of field data profiles and contour maps. Data can be filtered using either the FRASER or HJELT filters.

MagnetoTellurics

EMIX MT v2 (DOS) (Replaced by IX1D v 2 & 3)
EMIX MT is used for 1-D forward and inverse modeling of MT, AMT and CSAMT data taken in the ***far zone***. Data are apparent resistivities with or without impedance phase. EMIX MT also serves as the field data import path for EMIX MT2D. The data as well as the interpretations can be used in EMIX MT2D as a foundation for the 2D modeling.

EMIX MT2D v4 (DOS)
EMIX MT2D calculates the response of magnetotelluric data to a 2D earth model on the earth surface or sea floor. It can be used either in a forward modeling mode (no field data required) for exploring survey options or as a forward and inverse 2D modeling package to interpret field data. Data and results are read from the files generated by EMIX MT and used in the construction and calculations of the 2D models and responses.

Transient ElectroMagnetics

TEMIX XL v4 Family (DOS) (Replaced by IX1D v 3)
TEMIX and TEMIX XL import electromagnetic sounding data taken with the transient electromagnetic (TEM) method from most commercially available TEM systems. Forward and inverse modeling in terms of 1-D models is used to interpret sounding curves. Smooth model estimation, parameter fixing and equivalence analysis are also offered.

1-D DC Resistivity and Induced Polarization

RESIX v3, RESIX IP v2, RESIX PLUS v2 (DOS)
The RESIX 1D packages feature interactive forward and inverse modeling of sounding data. Model construction is done by dragging the layered model representation on screen. RESIX Plus and IP also offer a smooth model solution. Complete control of the inversions process is allowed by fixing parameters to constant values or to user-defined range of values. **(Replaced by IX1D v 2 & 3)**

2-D Resistivity & IP polygon & smooth modeling

RESIX 2DI v4 and RESIX IP2DI v4 (DOS)
Both packages offer the Interpex 2-D Smooth Inversion (cell based imaging) algorithm, the Zonge 2-D Smooth Inversion algorithm that incorporates topography in the smooth model (formerly known as RS2DIP), and a full featured 2-D polygon modeling and inversion system.

The ZONGE algorithm uses a two-dimensional finite element method which incorporates topography in modeling resistivity (and IP data). This is accomplished by first constructing a rectangular finite element mesh in the normal fashion (based on depth), and then deforming it to match the surface topography profile. Otherwise, the method used is the same as the standard method of Rijo and the special case in which topography is flat produces equations which are the same as those used by Riju (1977) and Wannamaker (1992).

Seismic Refraction

IXSeg2Segy (Shareware)

This is a seismic shot record viewing, processing and format conversion utility. It reads SEG-2, SEG-Y and most historic SEG-1 formats and writes SEG-2 and SEG-Y. It provides for trace editing, filtering, processing, display, break picking and simple reflection and refraction interpretation.

IXRefraX (Windows)
IXRefraX contains all the necessary tools to organize, process and interpret your refraction data using Palmer's Generalized Reciprocal Method (GRM) in a single integrated package. Data can be imported as raw seismic shot records or as tabulated travel time curves. A very fast method of forward and inverse modeling for multiple layers is used to derive a best-fit 2-D model. Ray-tracing shows the portions of the subsurface which influence the arrival times.

This best-fit model is used to assign arrivals to layers automatically with full manual override. Velocity analysis segments are displayed with full capability to see the raw data from which they came and to adjust first break picks, reciprocal times and arrival assignments.

With virtually no limit on the number or size of shots or spreads, an entire line of seismic refraction line can be processed and interpreted in a fraction of the time it takes with more labor intensive packages.

Replaces **FIRSTPIX/GREMIX (DOS)** packages

Ground Penetrating Radar Processing

IXGPR (Windows)
IXGPR is a fully functional shareware package that can be used with ease in the field to pre-process and display your data. It imports most commercial radar formats, and provides easy tree navigation to manage your data files on disk. WYSIWYG graphics layout ensures that you get the hard copy results you desire.

GRADIX v1 (DOS)
GRADIX allows the user to read, edit, analyze, process and interpret GPR data from most commercial instruments, in many popular formats. GRADIX creates a project from the raw radar files and allows the user easy access to the individual profiles. A multitude of processing algorithms are available. Full interactive color viewing of the profiles allows the user to examine the data in detail. IXGPR does not offer full processing but projects from Gradix import into IXGPR. GRADIX will not run under Win 2000, XP or newer OS.

Magnetics and Gravity

MAGIX v3 Family (DOS) (Replaced by IX2D)

The MAGIX family is used to create 2, 2.5, and 2.75-D earth models of magnetic & gravity data. Models consist of free form bodies & layers constructed interactively on the screen. The program does forward calculations in real time and the response changes can be tracked while modifying the bodies. Inversion allows for automatic changes to the bodies to produce the closest match of the synthetic data to the field data.

IX2D v1 (Windows)

IX2D replaces MAGIX for 2.5-D forward/inverse modeling of gravity and magnetics data using polygon-based models of finite extent. With a Windows interface, control over body and vertex placement, locking and fix/free status is much more user-friendly, as is the movement of bodies and (groups of) vertices which change color when they become illegal and bounce back to the last legal body when released. IX2D imports MAGIX MGX files as well as ASCII files of various kinds.

Shareware is in **Windows**, protected by user name and code.