



Geophysical Services

Environmental • Groundwater • Geotechnical

Northwest Geophysical Associates, Inc.

STATEMENT OF QUALIFICATION

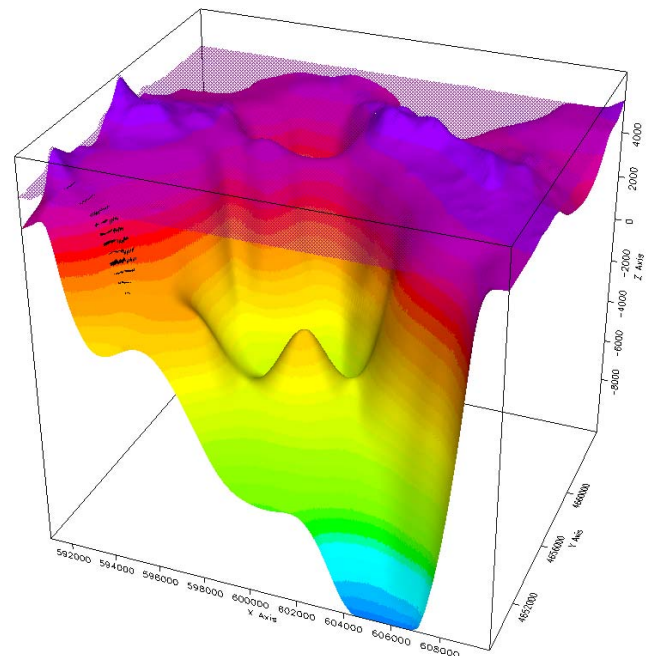
GEOTECHNICAL, ENVIRONMENTAL, and GROUNDWATER APPLICATIONS of GEOPHYSICS

INTRODUCTION

Northwest Geophysical Associates, Inc. (NGA), is a multi-faceted geophysical consulting firm serving geotechnical, environmental, and groundwater clients across the country. NGA's broad range of expertise includes seismic, electromagnetic, magnetic, electrical, gravity, and ground-penetration radar techniques. This diverse background allows NGA to select the proper geophysical techniques to match the survey objectives and survey conditions. The resulting interpretations incorporate all available information including geophysical, geological, and borehole data to provide the client with the best possible product.

NGA has provided geophysical services for many of the well-known geological, geotechnical, and environmental firms across the United States. Projects have fulfilled diverse objectives including depth-to-bedrock mapping, aquifer characterization, contaminant leachate delineation, detection and delineation of buried materials, and site response studies for earthquake hazards.

In addition to the geotechnical, environmental, and groundwater projects, other facets of NGA's business include gravity and magnetic data processing and consulting services for petroleum and mining exploration, and geophysical software development and marketing.



Gravity Model of Lower Klamath Lake Basin

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Statement of Qualifications

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NEAR-SURFACE GEOPHYSICAL SERVICES:

NGA utilizes all of the surface geophysical techniques commonly used in geotechnical, environmental, and groundwater applications including magnetics, electromagnetics (EM), ground penetrating radar, seismic refraction, borehole seismic, time-domain electromagnetics (TDEM), and DC resistivity. NGA uses state-of-the-art field equipment, data processing, and analysis methods. Our integrated geophysical interpretations utilize all available information including geologic, sampling, and borehole data. NGA has special expertise in advanced techniques, such as TDEM, which are finding widespread application to groundwater investigations.

NGA projects have satisfied varied objectives including:

- depth-to-bedrock mapping in the Long Valley, California,
- alluvial channel mapping beneath basalt flows in Skamania County, Washington,
- fault mapping and depth-to-bedrock mapping on Shemya Island, Alaska,
- mapping interbedded sedimentary units in the Columbia River Basalts, Klickitat County, Washington,
- thickness of sediments and fault delineation in the Lower Klamath Lake basin, Oregon,
- delineation of buried materials in Agana, Guam,
- unexploded ordnance detection in Huntsville, Alabama, and
- site response studies for earthquake hazards in Trinidad, West Indies.

GEOPHYSICAL STAFF

NGA has a staff of 9 persons, including three senior level geophysicists and support staff. Two (2) staff members are professional geologists registered in the State of Oregon. NGA has been in business since 1981.

NGA's environmental, geotechnical, and groundwater geophysics is led by **Dr. Rowland French, R.G.**, who has over 20 years of experience in engineering geophysics. He has directed geophysical programs throughout the western United States, Canada, and the Pacific Rim. Dr. French is a Registered Geologist in the states of Oregon and Washington and a Registered Geophysicist in the state of California.

Gerald Connard, R.G., president and founding partner of NGA, has over 25 years of experience in geophysics and has worked throughout the Pacific Northwest on environmental, geotechnical and exploration projects. He has special expertise in gravity and magnetic data acquisition, computer analysis, and interpretation.

Tom Popowski, geologist/geophysicist, has 15 years professional experience including 3 years with a regional geotechnical firm. Tom has an extensive knowledge of geology of the Tualatin Basin and the Portland area. He has expertise in near surface applications of EM and potential fields.

Mark Villa, project geophysicist, brings to NGA 3 years of experience collecting and analyzing geotechnical and environmental geophysical data. Mark has worked with geophysical firms on the East and West coasts of the United States.

Louis Carlson, senior geophysical technician and AutoCAD specialist, has over 20 years experience with NGA conducting field surveys, processing and analyzing geophysical data, and preparing presentation drawings.



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Jim Roy, a founding partner of NGA, has extensive experience in gravity and magnetic field data acquisition and data processing. He currently serves as computer systems engineer as well as working on field projects and data processing.

RESOURCES

NGA utilizes state-of-the-art geophysical equipment for each specific application including:

- Cesium vapor magnetometer/gradiometer (Geometrics G-858G)
- Proton precession magnetometer base station (Geometrics G-856)
- Geonics EM-31 Terrain Conductivity Meter w/ Allegro field PC data logger
- Geonics EM-34 Terrain Conductivity Meter w/ data logger
- Trimble AG132 DGPS receivers with “swathing” option light bars
- Ground penetrating radar (GPR) system (GSSI SIR-2000) with multiple antenna
- Geonics EM61TDEM Metal Detector



TDEM Groundwater Survey,
Hooper Bay, Alaska



Borehole Conductivity Logging,
Shemya Island, Alaska

- 24-channel seismic refraction system including:
Geometrics “Smartseis” 24 channel digital seismograph
assorted seismic cables and geophones
explosives handling/blasting equipment
- Downhole seismic shear-wave system including BHG-2 slimhole (2” diameter) triaxial geophone assembly
- Geonics Protem (EM47 & EM57) Time-domain electromagnetic systems
- Borehole geophysical logging systems including:
Mt. Sopris MGX logging system
assorted downhole probes
- AGI SuperSting DC Resistivity System

For data processing and analysis, NGA uses the latest Geosoft OasisMontaj® software including GM-SYS and UXO Detect modules. Data can be presented in any CAD or GIS format.

NGA has developed proprietary software for downhole shear-wave analysis, which improves data quality by vectorially combining the two horizontal components to obtain the “optimized trace”.



CLIENT LISTING

Recent clients include:

- Alaska Department of Transportation and Public Facilities
- AMEC Earth & Environmental
- Camp Dresser McGee
- Army Corps of Engineers
- Bergeson Boese & Associates
- CH2M Hill
- Cornforth Consultants
- DOWL Engineers, Inc.
- ENSR
- Exponent
- GeoEngineers
- Geotechnical Resources Inc.
- Golder Associates
- Harza Engineering
- IT Corp
- Kleinfelder
- Maul Foster Alongi, Inc.
- Parametrix
- Parsons Brinckerhoff
- Shannon & Wilson
- Oregon Department of Transportation
- R&M Consultants, Inc.
- SAIC
- Shannon Wilson, Inc.
- Shaw
- Tetra Tech
- United States Forest Service
- URS Corporation
- United States Geologic Survey

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