

# DESCRIPTION OF DIGITAL FILES FOR GEOLOGIC MAP OF THE WASHOUGAL QUADRANGLE, CLARK COUNTY, WASHINGTON AND MULTNOMAH COUNTY, OREGON

Database by Karen L. Wheeler and Michael G. Sawlan

## INTRODUCTION

This readme document serves to introduce and describe the digital files that are included in this publication. They are available for downloading at <http://pubs.usgs.gov/sim/3257> and include both Geographic Information System (GIS) software files (both raster and vector data) that are viewable with an Environmental Systems Research Institute (ESRI)-compatible commercial GIS (or with ESRI's ArcReader utility; a free map viewer with no editing capabilities), as well as Portable Document Format (PDF) files that are viewable with a reader or web browser plug-in available for free on the internet. Two download packages are available (see the section entitled "Scientific Investigations Map 3257 Digital Contents" below for details), depending on the resources available to the user. For those interested only in a paper plot of the Scientific Investigations Map, please see the section entitled "Obtaining Paper Plots" below.

This digital map publication, generated from new mapping by the authors, shows the general distribution of bedrock and surficial deposits in the Washougal 7.5' quadrangle. Together with the accompanying geologic description pamphlet, it presents current knowledge of the geologic structure and stratigraphy of the area covered. The database identifies map units that are classified by general age and lithology following the stratigraphic nomenclature used by the U.S. Geological Survey. The scale of the source map limits the spatial resolution (scale) of the database to 1:24,000 or smaller. The content and character of the digital publication, as well as methods of obtaining the digital files, are described below.

## SCIENTIFIC INVESTIGATIONS MAP 3257 DIGITAL CONTENTS

The digital data for this Scientific Investigations Map consists of:

1. A **Geodatabase** package that contains geologic vector and table data stored as data objects within an ESRI-format personal geodatabase, raster data stored as ESRI-format DRG-TIFF, an ESRI map document for use with ArcGIS 10.0 that allows full control of editing and rendering of the data sources, an ESRI published map document for use with ArcReader that allows viewing and querying of the source data along with metadata, and an ArcGIS style for symbolizing the map.
2. A **Shapefile** package that contains shapefiles exported from the personal geodatabase and the same ESRI DRG-TIFF as in the Geodatabase package along with supporting files. This package does not contain annotation layers included in the Geodatabase package due to software limitations.
3. A file with metadata for the entire database.
4. **PDF** files of the map sheet and geology pamphlet.

Each package has been compressed into a single file (.zip extension) using WinZip, a freely downloadable compression software utility (download from <http://www.winzip.com>). Each compressed file will uncompress into a folder containing the associated files.

If you:

- Have access to ArcGIS 10.0, download the Geodatabase package and open the map document (.mxd extension) from ArcGIS.
- Have access to ArcView 3.x (or a GIS that can read shapefiles), download the Shapefile package.
- Do not have access to a GIS but wish to view and query the data, download the Geodatabase package and open the published map document (.pmf extension) from ArcReader (free download from <http://www.esri.com>).
- Do not have access to a GIS and only wish to print the map sheet or parts of it, download the PDF package and open them from Adobe Reader 5.0 or later (free download from <http://www.adobe.com>). Note that the map sheet is approximately 36 x 56 inches and will require a large-format plotter.
- Only wish to have a paper copy of this Scientific Investigations Map, see the section entitled "Obtaining Paper Plots" below.

## 1.GEODATABASE PACKAGE

sim3257\_db.zip

*washougal.mdb* An ESRI personal geodatabase with simple feature classes:

<b>Feature Classes</b>	<b>Description</b>
------------------------	--------------------

<i>contacts</i>	A line feature class representing the contacts and faults of the geology
-----------------	--

<i>contacts_concealed</i>	A line feature class representing the concealed contacts and faults of the geology
---------------------------	--

<i>fault_names_Anno</i>	An annotation feature class representing the fault names
-------------------------	--

<i>geology_polys</i>	A polygon feature class representing geologic units
----------------------	---

<i>geology_polys_Anno</i>	An annotation feature class (feature-linked) representing map unit symbols of geologic units
---------------------------	--

<i>attitudes</i>	A point feature class representing bedding measurements
------------------	---

<i>attitudes_Anno</i>	An annotation feature class (feature-linked) representing the dip of beds
-----------------------	---

<i>cross_section_lines</i>	A line feature class representing cross section lines
----------------------------	---

<i>cross_section_lines_Anno</i>	An annotation feature class representing cross section letters
---------------------------------	--

<i>geochronology</i>	A point feature class representing Ar/Ar geochronologic data
----------------------	--

<i>geochronology_Anno</i>	An annotation feature class (feature-linked) representing Ar/Ar
---------------------------	---

dates of specific geologic units

*geochemistry* A point feature class representing geochemistry data points

*geochemistry\_Anno* An annotation feature class (feature-linked) representing the reference number of the chemistry points to the geochemical data

*radiocarbon\_ages* A point feature class representing radiocarbon data points

*radiocarbon\_ages\_Anno* An annotation feature class (feature-linked) representing radiocarbon age dates of specific samples

*thermoluminescence\_ages* A point feature class representing thermoluminescence ages

*thermoluminescence\_ages\_Anno* An annotation feature class (feature-linked) representing thermoluminescence ages of specific samples

*washougal.mxd* Map document created in ArcGIS 10.0 containing the data rendering and symbolization information that was used in the production of the Scientific Investigations Map sheet. For this release, the layers were grouped logically and given aliases in order to be more usable

*washougal.pmf* Published map document created from washougal.mxd for use with ArcReader. It contains all of the same rendering and symbolization information that is in the original .mxd. Features may be queried with the identify tool in the same way they could in the .mxd, but there are no editing capabilities with this utility

*washougal.style* Custom style file used to symbolize lines, polygons, and points.

*washougal.tif* Digital Raster Graphic (DRG) base of USGS topographic map at 400dpi

## **2.SHAPEFILE PACKAGE**

sim3257\_shp.zip

### **Shapefiles**

### **Description**

*contacts.shp* A line shapefile of the contacts feature class exported from the geodatabase (see Geodatabase Package above)

*contacts\_concealed.shp* A line shapefile of the contacts\_concealed feature class exported from the geodatabase (see Geodatabase Package above)

*geology\_polys.shp* A polygon shapefile of the *geology\_polys* feature class exported from the geodatabase (see Geodatabase Package above)

*attitudes.shp* A point shapefile of the *attitudes* feature class exported from the geodatabase (see Geodatabase Package above)

*cross\_section\_lines.shp* A line shapefile of the *crossSectionLines* feature class exported from the geodatabase (see Geodatabase Package above)

*geochronology.shp* A point shapefile of the *geochronology* feature class exported from geodatabase (see Geodatabase Package above)

*geochemistry.shp* A point shapefile of the *geochemistry* feature class exported from the geodatabase (see Geodatabase Package above)

*radiocarbon\_ages.shp* A point shapefile of the *radiocarbon\_ages* feature class exported from the geodatabase (see Geodatabase Package above)

*thermoluminescence\_ages.shp* A point shapefile of the *thermoluminescence\_ages* feature class exported from the geodatabase (see Geodatabase Package above)

### **Map document files**

*washougal.style* Custom style file used to symbolize lines, polygons, and points

*washougal.tif* DRG base of USGS topographic map at 400 dpi

### **3.METADATA**

#### **Files**

#### **Description**

*washougal\_metadata.txt* Metadata created in ArcCatalog for this map

### **4.PORTABLE DOCUMENT FORMAT (ADOBE ACROBAT 7.0) FILES**

#### **Files**

#### **Description**

*washougal\_map.pdf* A PDF file containing an image of the entire map sheet, exported from Adobe Illustrator

*washougal\_text.pdf* Geology pamphlet

### **OBTAINING THE DIGITAL DATA**

The digital data for this map can be obtained in two ways:

- 1) Download from the U.S. Geological Survey Web Site
- 2) Request a compact disc (CD) of the files

1) TO OBTAIN THE FILES FROM THE U.S. GEOLOGICAL SURVEY WEB PAGES: The U.S. Geological Survey supports a set of graphical pages on the World Wide Web. Digital publications (including this one) can be accessed via these pages. The location of the main Web page for the entire U.S. Geological Survey is <http://www.usgs.gov>. The

Web server for digital publications is <http://pubs.usgs.gov>. To access files for this Scientific Investigations Map report, go to <http://pubs.usgs.gov/sim/3257>.

2) TO OBTAIN A CD OF THE FILES:

A CD of any or all of the digital files described here can be obtained by sending a request and return address to: Karen L. Wheeler or Russell Evarts

U.S. Geological Survey

345 Middlefield Road, M/S 973

Menlo Park, CA 94025

or by email: <mailto:kwheeler@usgs.gov> or <mailto:revarts@usgs.gov>

### **OBTAINING PAPER PLOTS**

#### **TO OBTAIN PLOTS FROM A COMMERCIAL VENDOR:**

First obtain the PDF package via a download or by requesting a CD of the PDF package as described above. Take that package to a commercial vendor with a large-format plotter. Make sure the vendor is capable of reading CDs and PDF files and provide the vendor with a copy of this document.

#### **TO OBTAIN PAPER PLOTS FROM THE U.S. GEOLOGICAL SURVEY:**

The U.S. Geological Survey provides a print on demand service for digital maps such as this report. To obtain plots, contact the U.S. Geological Survey:

**USGS Information Services**

**Box 25286**

**Denver Federal Center**

**Denver, CO 80225-0046**

**(303) 202-4200**

**1-888-ASK-USGS**

**FAX: (303) 202-USGS**

**e-mail: [infoservices@usgs.gov](mailto:infoservices@usgs.gov)**

Be sure to include with your request the Scientific Investigations Map number 3257.

### **DIGITAL COMPILATION**

Several different feature classes were generated within a geodatabase during the construction of the Washougal quadrangle geologic map. The topographic base map remains as a digital raster graphic (DRG) and is overlain on the geology feature class in ArcMap at a 60% transparency level. Some custom menus were used to project, transform, edit, tag, and build points in the map. A digital layout or map collar was made with Adobe Illustrator. The map was exported from the layout view in ArcMap as an Adobe Illustrator file and added to a single Adobe Illustrator file that also contained the description of map units, correlation of map units, cross sections, and an index map. Differences between the maps as they appear in the final map sheet and as they appear in either the .mxd or .pmf files represent changes made in the Adobe Illustrator file to the symbology only and do not reflect any changes in the actual source data. The map is in UTM projection, zone 10, meters, and 1:24,000 scale. The explanatory geology pamphlet was saved to PDF from Microsoft Word.

## **BASE MAP**

The base map for the digital compilation is a Digital Raster Graphic (DRG) of the U.S. Geological Survey, 1:24,000-scale topographic map of the Washougal 7.5' quadrangle (1994), which has a 20-foot contour interval. The image inside the map neatline is georeferenced to the Universal Transverse Mercator projection. The horizontal positional accuracy and datum of the DRG matches the accuracy and datum of the source map. The base map layer is a digital image, but no information other than location is attached to the lines. The base map is provided for reference only.

## **SPATIAL RESOLUTION**

Uses of this digital geologic map should not violate the spatial resolution of the data. Although the digital form of the data removes the constraint imposed by the scale of a paper map, the detail and accuracy inherent in map scale are also present in the digital data. The fact that this database was edited at a scale of 1:24,000 means that higher resolution information is not present in the dataset. Plotting at scales larger than 1:24,000 will not yield greater real detail, although it may reveal fine-scale irregularities below the intended resolution of the database. Similarly, where this database is used in combination with other data of higher resolution, the resolution of the combined output will be limited by the lower resolution of these data.

## **ACKNOWLEDGMENTS**

We thank Zenon Valin for a digital review of this database.