

# Peer Review Summary Document

(April 23, 2008)

## Peer Review Plan

[Southeast Extension of the Southern Whidbey Island Fault, Washington: Implications for Earthquake Hazards](#) [55 KB PDF].

## Title and Authorship of Information Product Disseminated

Finding Concealed Active Faults: Extending the Southern Whidbey Island Fault Across the Puget Lowland, Washington, *by Brian L. Sherrod, Richard J. Blakely, Craig S. Weaver, Harvey M. Kelsy, Elizabeth Barnett, Lee Liberty, Karen L. Meagher, and Kristen Pape.*

## Peer Reviewers Expertise and Credentials

The scientific expertise of the two peer reviewers the U.S. Geological Survey (USGS) selected includes earthquake geology and structural geology (Peer Reviewer #1) and seismology and geophysics (Peer Reviewer #2). Their professional credentials are PhD, Geological Sciences (Peer Reviewer #1) and PhD, Geophysics (Peer Reviewer #2).

## Charge Submitted to Peer Reviewers

The reviewers were asked to make an objective evaluation of the research. The reviewers were also instructed that if they felt they couldn't objectively evaluate the research or felt they were not qualified to evaluate the research, they should inform the USGS author(s) so other reviewers could be selected.

## Summary of Peer Reviewers Comments

### Reviewer #1 Summary

In general, Reviewer #1 said that it was an important new study on active faults in the Puget lowland and should be published. However, Reviewer #1 had some difficulties with how the magnetic and paleoseismic data were presented and interpreted, and gave many comments on how the presentation and interpretation could be improved.

### Reviewer #2 Summary

Reviewer #2 commented that this paper presents a detailed and thorough description of new evidence suggesting that the Southern Whidbey Island Fault Zone (SWIFZ) extends onto the mainland southeast of Whidbey Island as a broad, 20-km wide zone of fault strands between the cities of Everett and Seattle. The evidence is based on aeromagnetic lineaments, lidar topographic lineaments and scarps, geologic trenches sited with the help of the lineaments and scarps, and several seismic lines. It is the combination of the results from these different approaches that makes the case for a southeast extension particularly compelling. All of the studies have been carried out by experienced researchers familiar with

working under the difficult conditions (e.g., poor exposure, glacial overprinting) found in the Pacific Northwest.

Reviewer #2 thinks that this paper will be an important contribution to the understanding of tectonics and earthquake hazards in the Pacific Northwest.

## **Summary of USGS Response to Peer Reviewer Comments**

The two peer reviewers selected by USGS provided numerous comments that ranged from conceptual comments on the ideas expressed in the manuscript to detailed editorial comments on specific lines of text. In general, comments from Reviewer #1 tended to focus on the paleoseismology portion and Reviewer #2 had comments on the regional geologic structure and geophysics portion of the manuscript. In addition, Reviewer #2 encouraged USGS to proceed with publication of the manuscript. All comments from the two reviewers were carefully considered, addressed, and incorporated into the manuscript where appropriate, before it was submitted for USGS approval prior to being released to the outside journal for publication.

Major comments from Reviewer #1 focused on the interpretations of the trench logs. USGS addressed these comments by including two additional figures and revising several other figures. In response to Reviewer #1's questions on the adequacy of the references, all of the reviewer's suggestions were added to the reference list. Reviewer #1 reviewed the paper a second time and was satisfied with how USGS addressed the original comments. In the second review, Reviewer #1 suggested including a discussion on how an earthquake chronology that was presented by Karlin and Abella in the March 1996 *Solid Earth* issue of *Journal of Geophysical Research* impacted USGS findings. USGS included a citation to the Karlin and Abella work in the reference list of this paper; however USGS declined to include the discussion on the basis that the Karlin and Abella work did not address, as an alternative hypothesis to their findings, how large forest fires would impact the magnetic susceptibility records upon which their chronology is based.

One of Reviewer #2's comments was about the figures in the original paper--that is, all of the "old" and "new" concepts about the SWIF were not shown on a single map. USGS believes Figure 12 of the revised manuscript, which shows Sam Johnson's strands, Sam Johnson's Q faults, Harvey Kelsey's marshes, new USGS strands, the new Holocene sites, and so forth, addressed Reviewer #2's comments. Other comments from Reviewer #2 were also addressed in the revised manuscript.

## **The USGS Dissemination**

The USGS submitted the information product to the *Journal of Geophysical Research* in March 2007, for publication. Refer to <http://www.agu.org/journals/jb/> for information on the availability of the published information product.