

*Tectonics*

Supporting Information for

**The Chimei submarine canyon and fan: A record of Taiwan arc-continent collision on the rapidly deforming over-riding plate**

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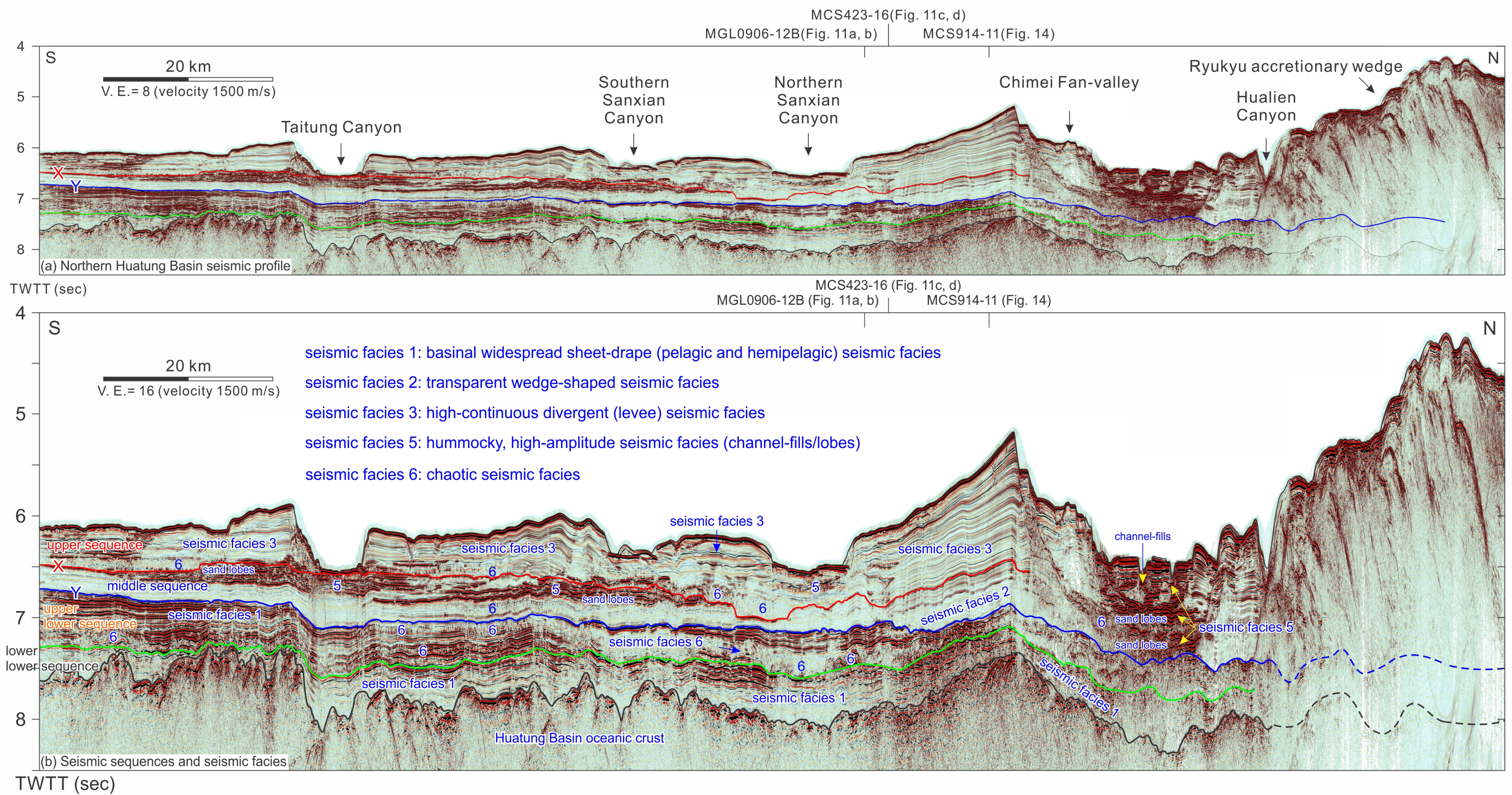
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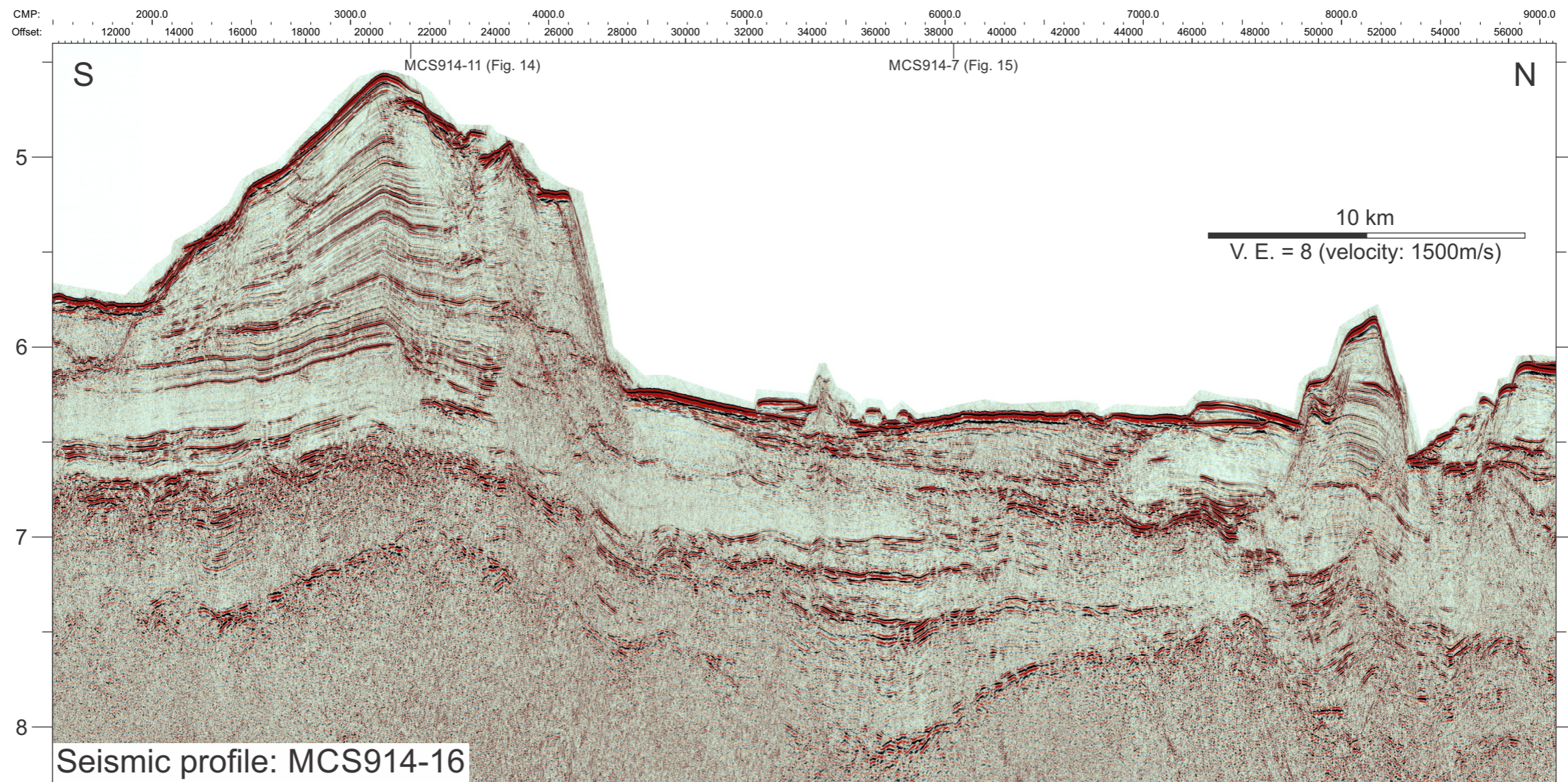
Figures S1 to S7

## Introduction

Seven high-resolution seismic profile images are provided in this supporting information, including five post-stack time migration seismic profiles and two pre-stack depth migration profiles. Multichannel seismic data MCS423-16 was collected onboard the R/V *Ocean Researcher I* cruise OR1-0423 during 1995; MCS914-7, MCS914-11, and MCS914-16 were collected onboard the R/V *Ocean Researcher I* cruise OR1-0914 during 2009; MGL0906-12B, 26 & 26A were collected onboard the R/V *Marcus G. Langseth* during the TAIGER project, 2009. Streamer, source, and recording information are shown in Table 1 in the main manuscript. S1-S5 were processed using ProMAX seismic processing software at the Institute of Oceanography, National Taiwan University. S6-S7 were processed using Paradigm Echos and GeoDepth seismic processing software at the Institute of Oceanography, National Taiwan University. S1-S5 are post-stack time migration profiles for which seismic traces are stacked using an appropriate velocity model before f-k migration. S6-S7 are pre-stack depth migration profiles for which seismic traces are migrated (using Kirchhoff depth migration) by applying an accurate velocity model before stack. Notice that the basement high below the Chimei Fan in S1-S4 is a velocity pull-up.

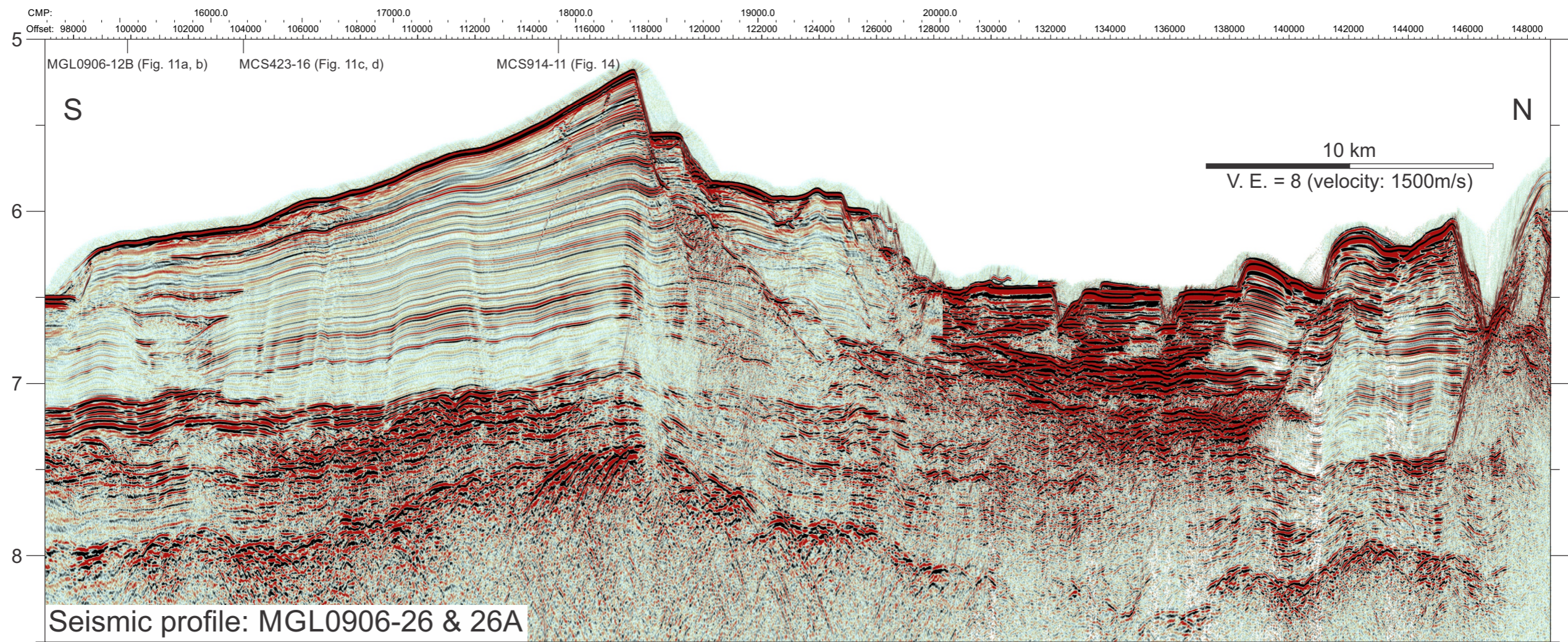


**Figure S1.** (a) Post-stack time migration seismic profile of the northern Huatung Basin. (b) Interpretation of seismic sequences and seismic facies in the northern Huatung Basin. The vertical exaggeration (V. E.) is 8 for (a) and 16 for (b) by applying water velocity (1500m/s).



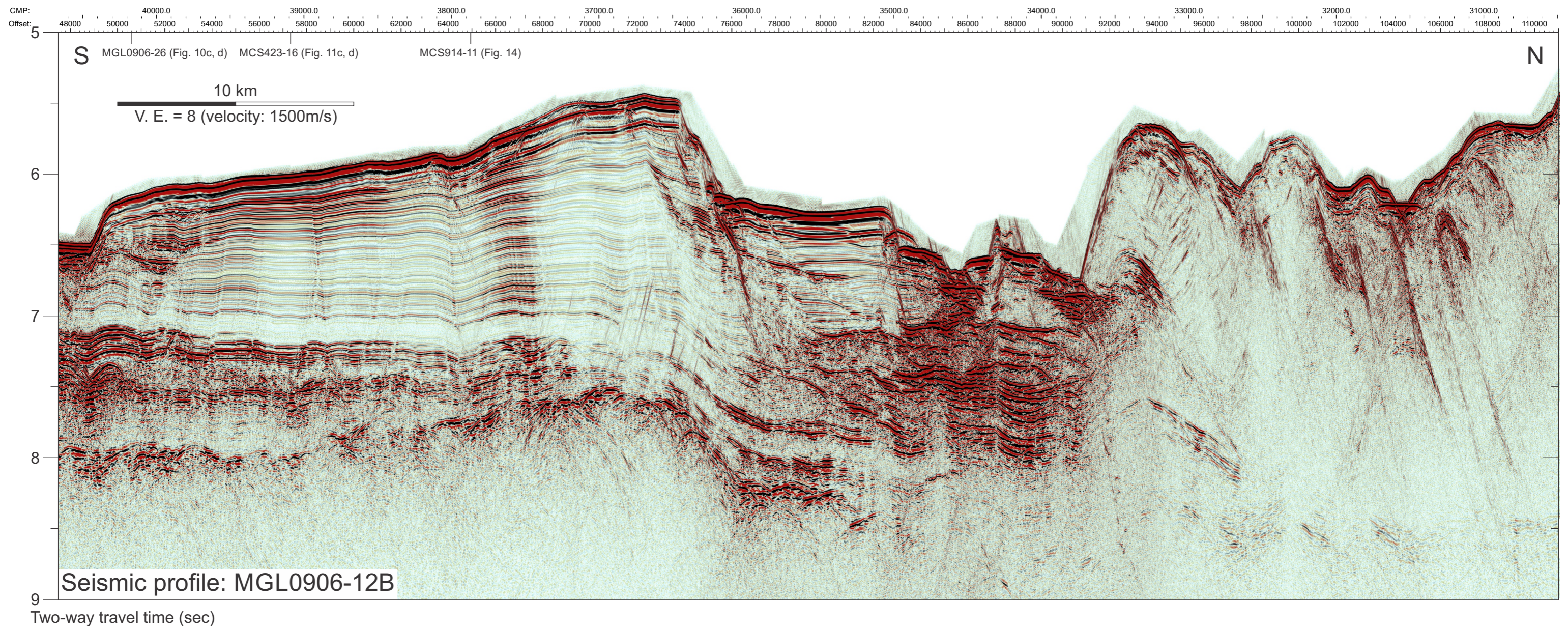
Two-way travel time (sec)

**Figure S2.** High-resolution post-stack time migration profile of the upper Chimei Fan: MCS914-16. Ticks with mark of seismic profile name and figure number show the intersection of crossing seismic profiles in this paper.

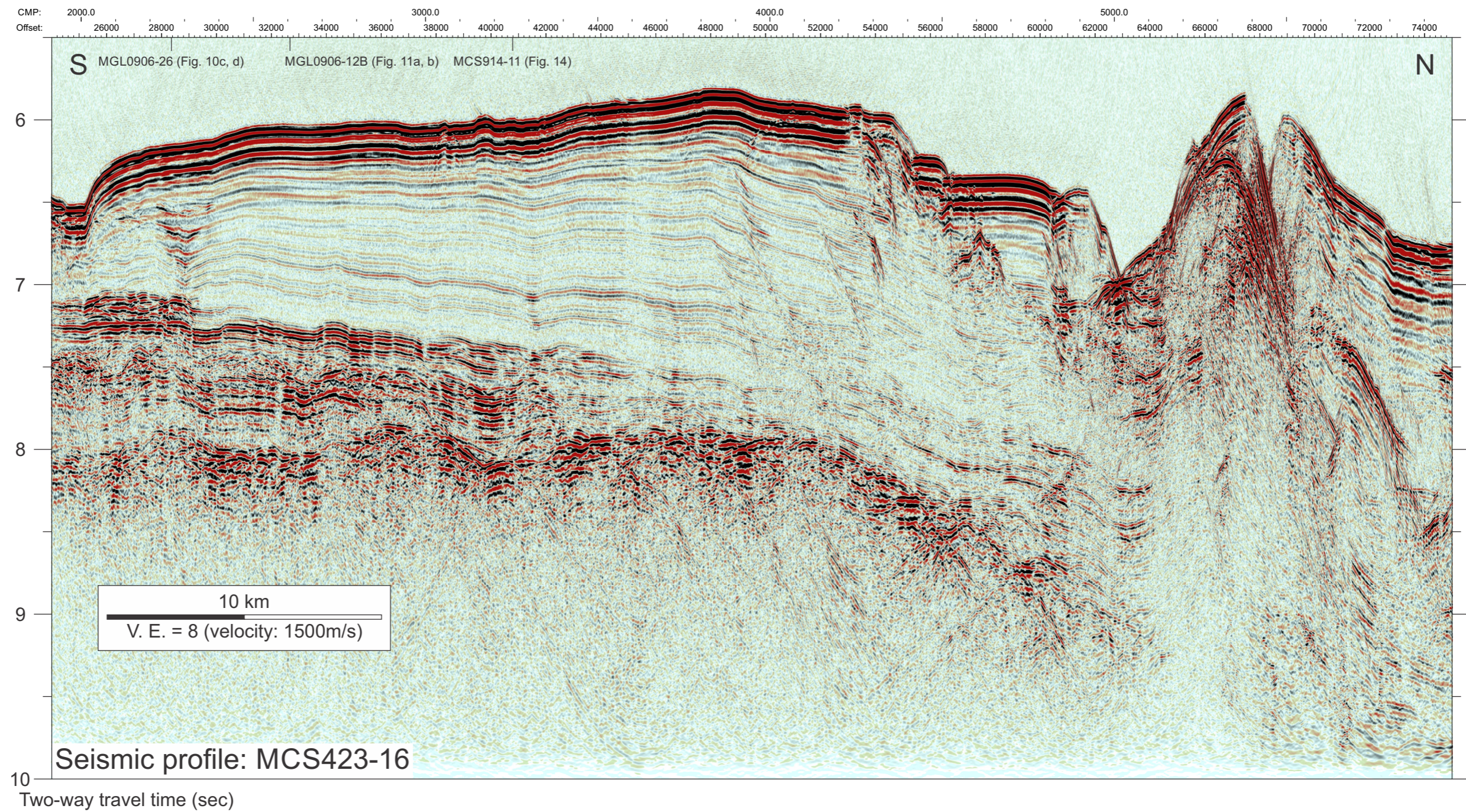


Two-way travel time (sec)

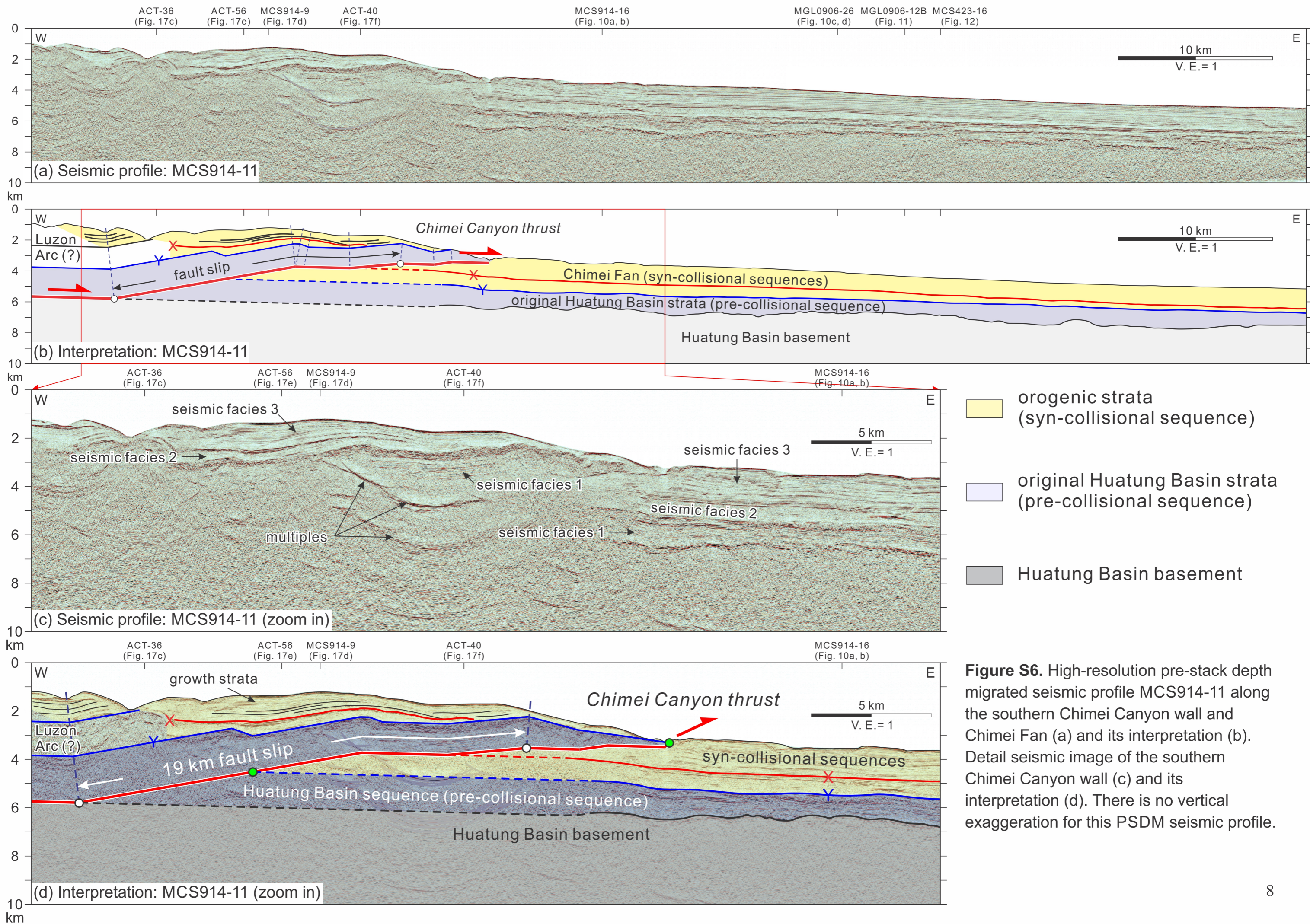
**Figure S3.** High-resolution post-stack time migration profile of the upper Chimei Fan: MGL0906-26 and 26A. Ticks with mark of seismic profile name and figure number show the intersection of crossing seismic profiles in this paper.



**Figure S4.** High-resolution post-stack time migration profile of the Chimei Fan and deep-sea valley: MGL0906-12B. This seismic profile shows that the Chimei Fan and deep-sea valley are beginning to be incorporated into the Ryukyu accretionary wedge. Ticks with mark of seismic profile name and figure number show the intersection of crossing seismic profiles in this paper.

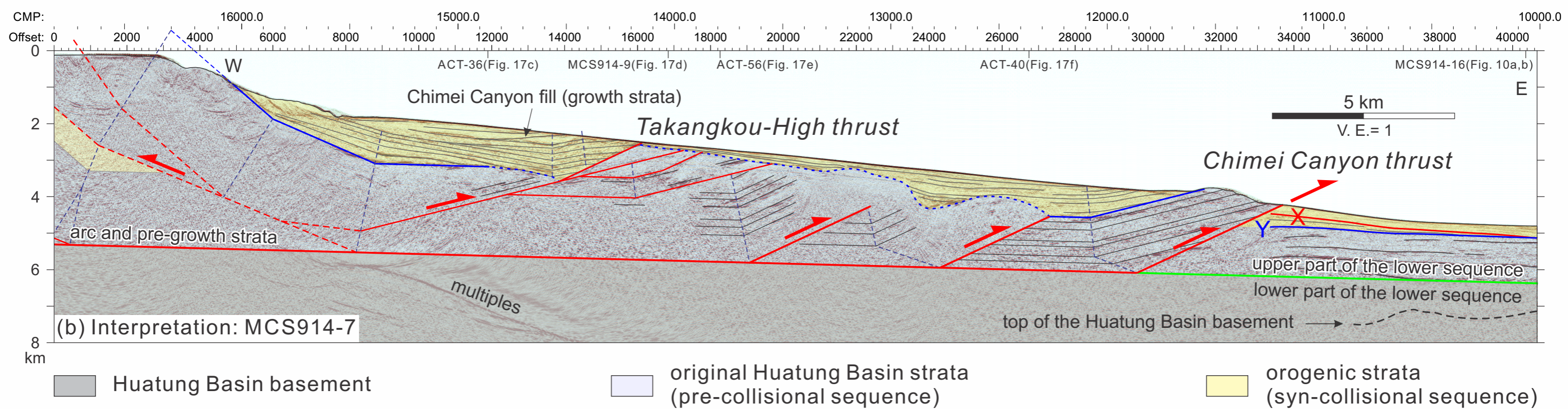
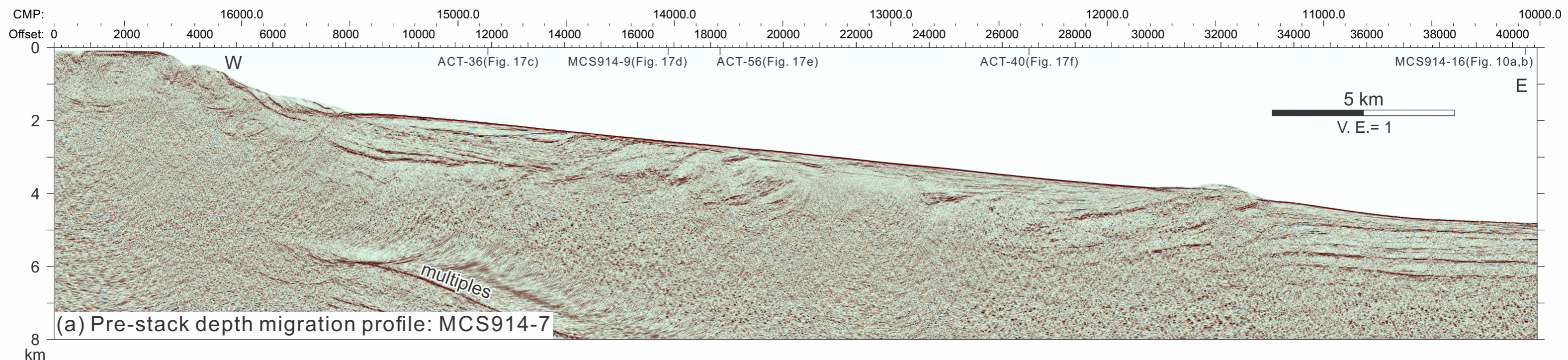


**Figure S5.** High-resolution post-stack time migration profile of the lower Chimei Fan: MCS423-16. Ticks with mark of seismic profile name and figure number show the intersection of crossing seismic profiles in this paper.



**Figure S6.** High-resolution pre-stack depth migrated seismic profile MCS914-11 along the southern Chimei Canyon wall and Chimei Fan (a) and its interpretation (b). Detail seismic image of the southern Chimei Canyon wall (c) and its interpretation (d). There is no vertical exaggeration for this PSDM seismic profile.





**Figure S7.** High-resolution pre-stack depth migrated seismic profile MCS914-7 along the Chimei Canyon (a) and its interpretation (b). There is no vertical exaggeration for this PSDM seismic profile.