

Figure F1. Location map for Site U1438, drilled during Expedition 351 south of Japan (see the Expedition 351 summary chapter [Arculus et al., 2015b]).

Figure F2. Relationships of (left) hole summary, (middle) core, and (right) section columns showing how detailed sections and core summaries were used to provide insight into stratigraphy at Site U1438. Summary column depicts unit boundaries (left) and descriptions (right) for sedimentary (Units I–IV) to volcanic (Unit 1) succession drilled during Expedition 351. Downhole plot of averaged grain size (5 m intervals) shows gross trends from the Site U1438 chapter [Arculus et al., 2015c]. Grain size classes: cl = clay, si = silt, vfs-fs = very fine to fine sand, ms-vcs = medium to very coarse sand, gr = granules. Note that intervals of low recovery are not adequately accounted for using this method. Maximum bedding thickness corresponds to thickest bed present in each core as determined by visual observation (***) = >1 m, ** = 1–0.3 m, * = <0.3 m).

Figure F3. Symbols used in constructing stratigraphic columns, Site U1438.

Figure F4. Classification schemes used in this study. Schemes for turbidity current deposits and their subdivisions are after Stow and Shanmugam (1980), Bouma (1962), and Lowe (1982). Additional schemes for mud and debris flow deposits and primary pyroclastic deposits are also shown.

Figure F5. Downhole distributions of grain size, facies classes, and depositional units, on core-by-core basis. Unit II–IV subunits outlined in this study and shipboard-defined units and ages (see the Expedition 351 summary and Site U1438 chapters [Arculus et al., 2015b, 2015c]) are shown. Facies classes refer to classes in Table T1: disorganized mud = E1, organized mud = E2, disorganized silt = D1, organized silt = D2, sand and mud couplets = C2, disorganized sand = B1, organized sand = B2, disorganized gravel = A1, sandy gravel = A2. Bin size is one 9.5 m core interval (9.5 m or less recovery). A. 0–896.2 mbsf, Holes U1438A, U1438B, and U1438D. (Continued on next page.)

Figure F5 (continued). B. 896.2–1500 mbsf, Hole U1438E.

Figure F6. A. Nearly complete Stow and Shanmugam (1980) fine-grained turbidite sequence (351-U1438E-15R-1). B. Complete Bouma (1962) medium-grained turbidite sequence (34R-5). C. Complete Lowe (1982) coarse-grained turbidite sequence (26R-4). D. M₁ hemipelagic mudstone (52R-1). E. D₂ debrite (351-U1438D-12R-3). F. V₁ primary tuff (351-U1438E-48R-1). Note centimeter scale on images. Gravity flow elements marked on images are defined in Figure F4.

Figure F7. Downhole distribution of depositional units within Unit III. Unit III subunits described in this study are shown to the left of each column. Bin size is one depositional unit.

Figure F8. Subunit III-L, Hole U1438E. A. Thin turbidites (54R-2). B. One of many unstructured hemipelagic mud beds examined in this study (52R-1). Note centimeter scale on images.

Figure F9. Subunit III-K, Hole U1438E. A. Part of thick primary tuff bed (47R-1). B. Medium-grained turbidite (48R-4). Note centimeter scale on images.

Figure F10. Subunit III-J, Hole U1438E. A. Primary tuff bed (42R-1). B. Tbc turbidite (40R-1). Note centimeter scale on images.

Figure F11. Subunit III-I, Hole U1438E. A. Turbidite interval that lies between thick debrite beds (out of image area) (24R-4). Sedimentary structures are likely overprinted and distorted by secondary alteration to zeolites. B. Base of thick debrite bed (25R-5). Note centimeter scale on images.

Figure F12. Typical Subunit III-H turbidite sequence (351-U1438E-18R-3). Note centimeter scale on image.

Figure F13. Subunit III-G. A. Portion of highly disturbed and microfaulted zone at base of Hole U1438D (71R-2). B. Part of turbidite interval situated between debrites in Hole U1438E (14R-4). C. Typical appearance of debrites in Subunit III-G (8R-1). Note centimeter scale on images.

Figure F14. Typical turbidite from thin Subunit III-F (351-U1438D-64R-1). Note centimeter scale on image.

Figure F15. Subunit III-E, Hole U1438D. A. Typical appearance of Subunit III-E debrites (63R-1). B. Turbidites deposited within debrite intervals (60R-7). Note centimeter scale on images.

Figure F16. Subunit III-D. A. Fine- and medium-grained turbidites (351-U1438D-50R-5). B. Coarse-grained turbidites (49R-6). Note centimeter scale on images.

Figure F17. Subunit III-C, Hole U1438D. A. Part of 16 m debrite bed that makes up bottom of subunit (47R-2). B. One of many Tbcde turbidites in Subunit III-C (43R-2). Note centimeter scale on images.

Figure F18. Subunit III-B, Hole U1438D. A. Thin medium-grained turbidites (39R-3). B. 0.75 m thick Tbcde turbidite (39R-5). Top is not shown. Note centimeter scale on images.

Figure F19. Subunit III-A, Hole U1438D. A. Part of debrite bed immediately below Unit III/II boundary (12R-3). B. Fine-grained turbidite (25R-5) from the fine- and medium-grained turbidite interval that makes up Core 25R. Note centimeter scale on images.

Figure F20. Unit III/II boundary (351-U1438D-12R-3). Note the contact was not recovered but drawn in rubble zone where lithologies change from mudstone to conglomerate. Note centimeter scale on image.

Figure F21. Prominent convoluted fine-grained turbidite (351-U1438D-9R-2), Subunit II-C. Note centimeter scale on image.

Figure F22. Drilling disturbance (brecciation) in fine-grained heavily bioturbated beds in Subunit II-B (351-U1438B-28X-3). Note centimeter scale on image.

Figure F23. Subunit II-A, Hole U1438B. A. Final turbidites deposited (23X-2). B. Hemipelagic mud and dark, fining-upward primary ash (18H-2). Note centimeter scale on images.