(a) Pre-morph RCF together with the extracted triangles at their death resolutions.

(b) Pre-morph perspective view of the extracted surface.

(c) Pre-morph aerial view; the triangles which will be refined during the geomorph are highlighted.

(d) Post-morph RCF together with the new set of extracted triangles at their death resolutions.

(e) Post-morph perspective view of the new extracted surface.

(f) Post-morph aerial view; the triangles which were refined during the geomorph are highlighted.

Figure 3: Simple demonstration of the operation of a geomorph on a low-resolution representation of the Mt St Helens dataset. The geomorph was caused by the movement of an AOI in the RCF.
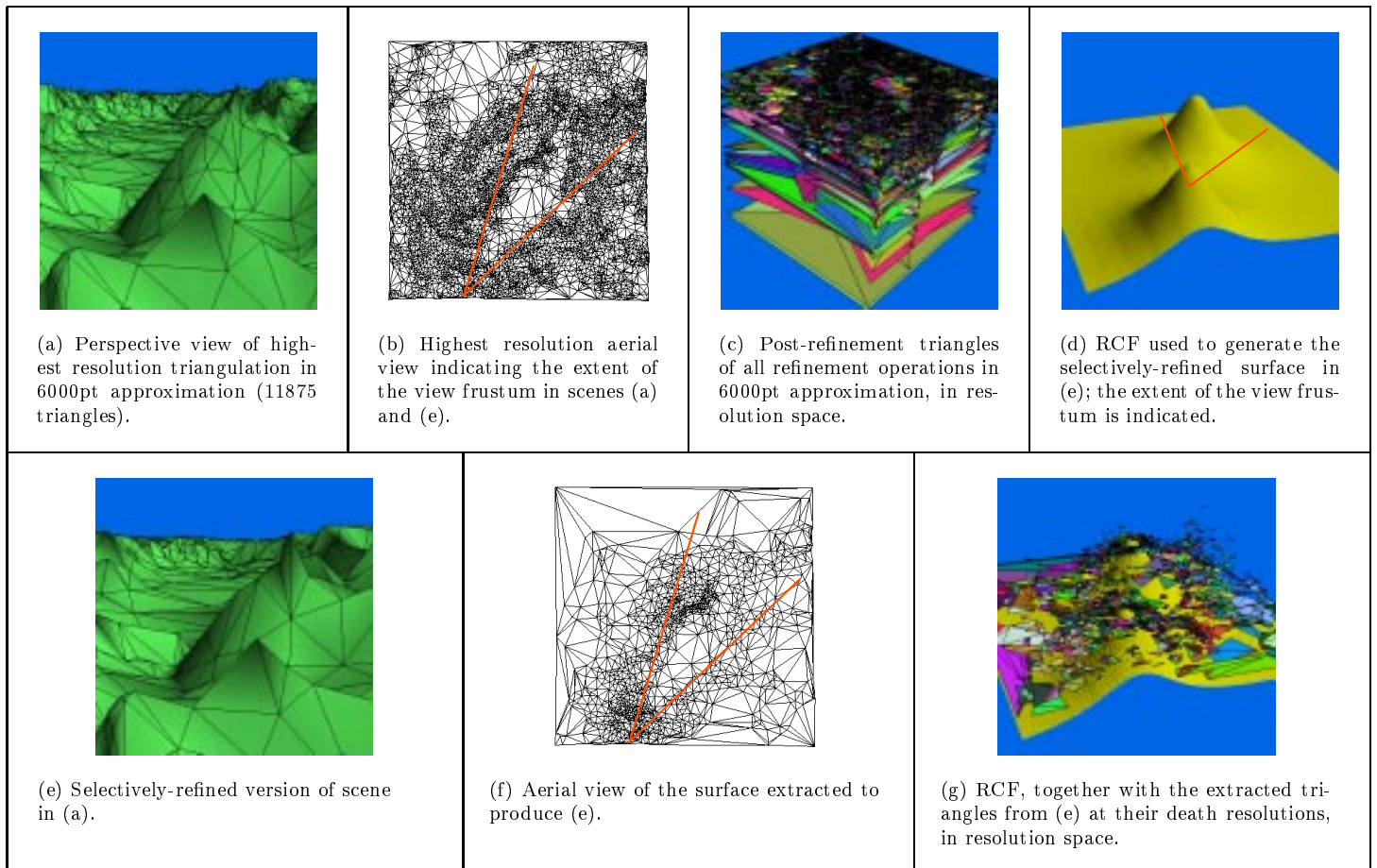
(a) Perspective view of highest resolution triangulation in 6000pt approximation (11875 triangles).

(b) Highest resolution aerial view indicating the extent of the view frustum in scenes (a) and (e).

(c) Post-refinement triangles of all refinement operations in 6000pt approximation, in resolution space.

(d) RCF used to generate the selectively-refined surface in (e); the extent of the view frustum is indicated.

(e) Selectively-refined version of scene in (a).

(f) Aerial view of the surface extracted to produce (e).

(g) RCF, together with the extracted triangles from (e) at their death resolutions, in resolution space.

Figure 4: Emory Peak selective refinement example inputs - (a) to (d) - and outputs - (e),(f),(g).

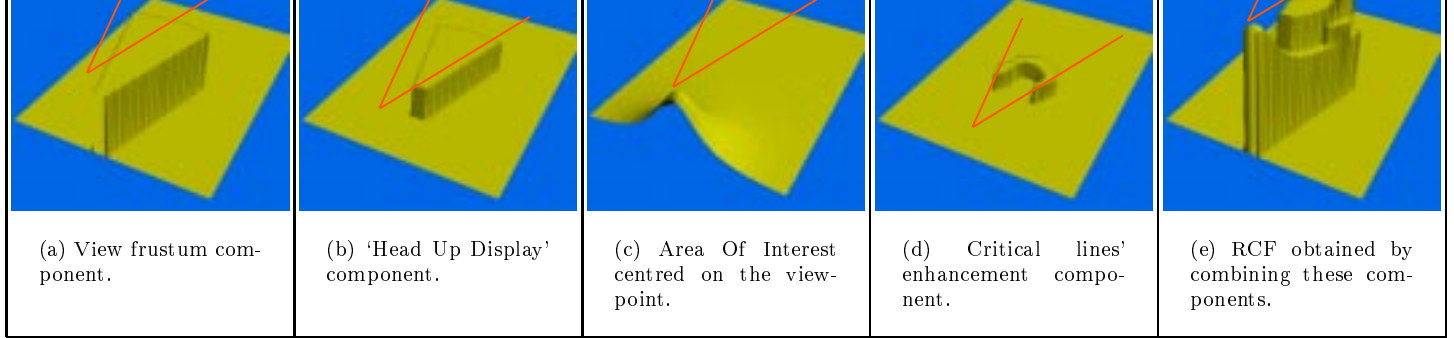| | | | | |
|---|---|---|---|---|
| (a) View frustum component. | (b) 'Head Up Display' component. | (c) Area Of Interest centred on the view-point. | (d) Critical lines' enhancement compo-nent. | (e) RCF obtained by combining these com-ponents. |

Figure 5: Components of the RCF used to produce the selectively-refined view in Figure 6(f). The orange lines denote the extent of the view frustum in the $xy$-plane.

| | | | | |
|---|---|---|---|---|
| (a) Highest resolution triangulation in 7200pt approximation; the view frustum for (d) and (f) is illustrated. | (b) Highest resolution aerial view indicating the extent of the view frustum in scenes (d) and (f). | (c) Post-refinement tri-angles of all refinement operations in 7200pt approximation, in res-olution space. | (d) A view of the crater from the highest reso-lution triangulation in (a). | (e) Similar view of (a) with the viewpoint moved forward. |

| | | | |
|---|---|---|---|
| (f) Selectively-refined ver-sion of scene in (d); the simulated Head Up Display screen region is indicated. | (g) Perspective view of the surface extracted to produce (f). | (h) Aerial view of (g). | (i) RCF used to produce (f), together with the triangles from (f) at their death res-olutions, in resolution space. |

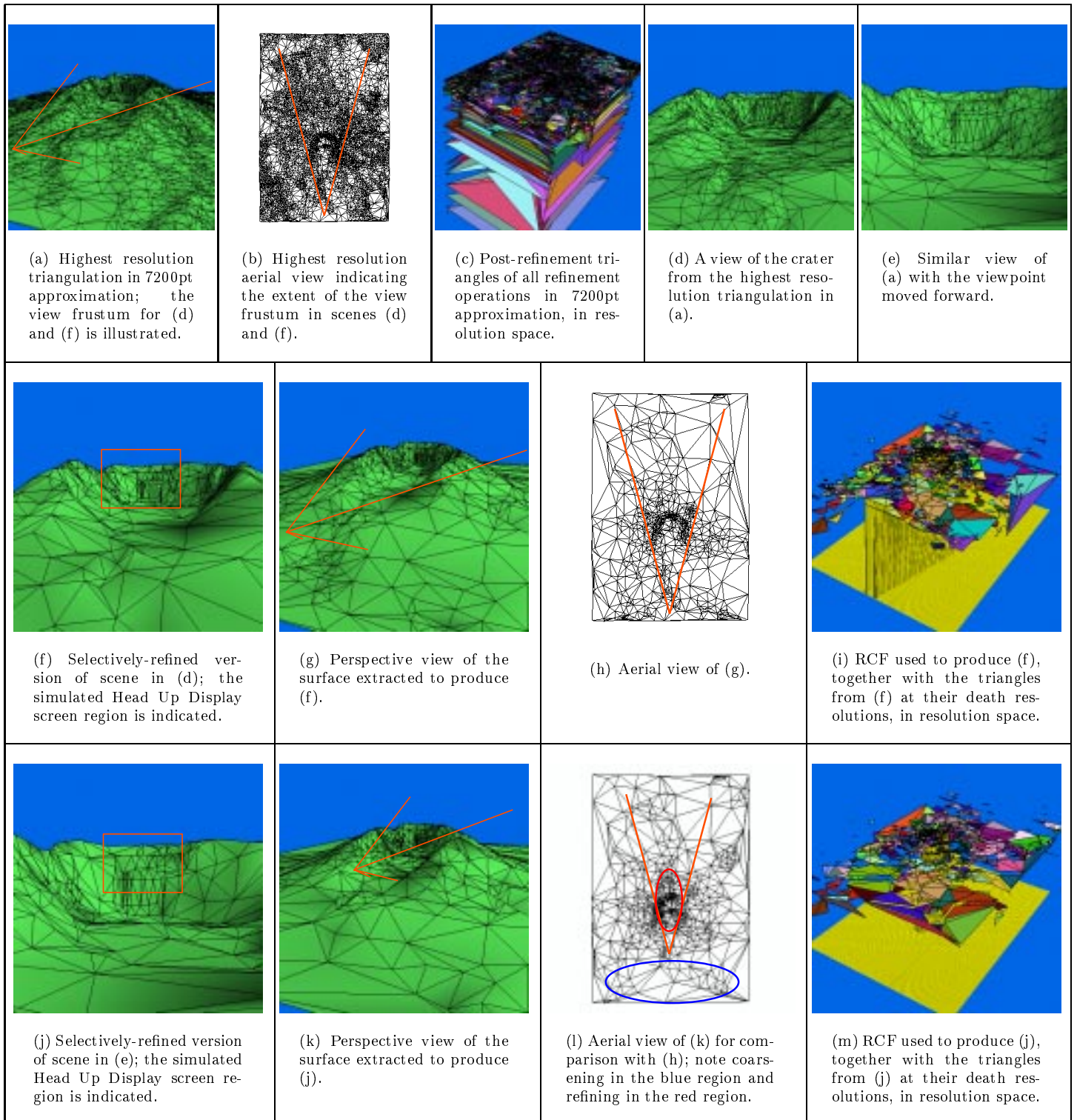| | | | |
|---|---|---|---|
| (j) Selectively-refined version of scene in (e); the simulated Head Up Display screen re-gion is indicated. | (k) Perspective view of the surface extracted to produce (j). | (l) Aerial view of (k) for com-parison with (h); note coars-ening in the blue region and refining in the red region. | (m) RCF used to produce (j), together with the triangles from (j) at their death res-olutions, in resolution space. |

Figure 6: Views of a single-resolution approximation of Mt St Helens ((a)-(e)) and two sets of selectively-refined outputs.