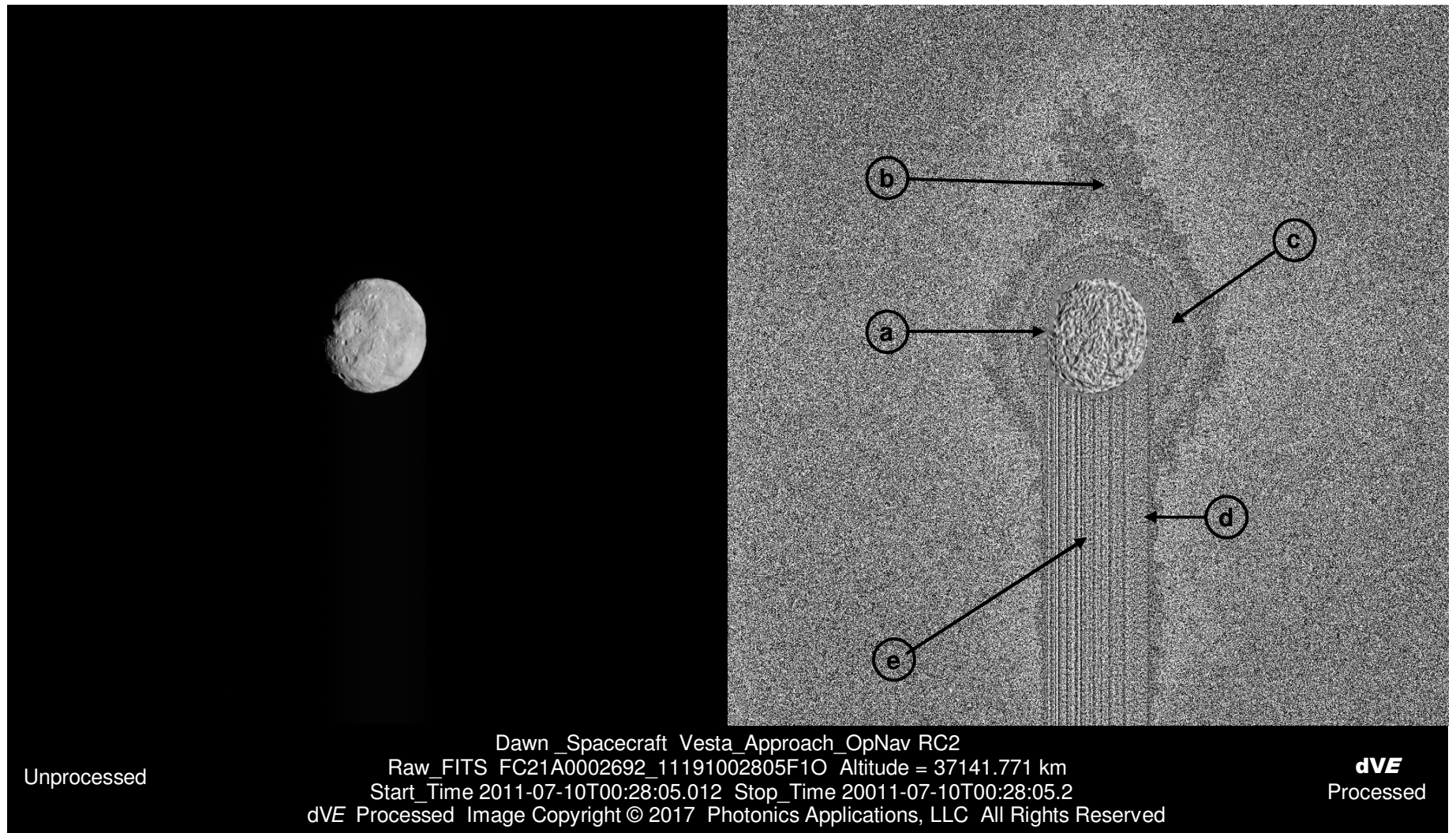
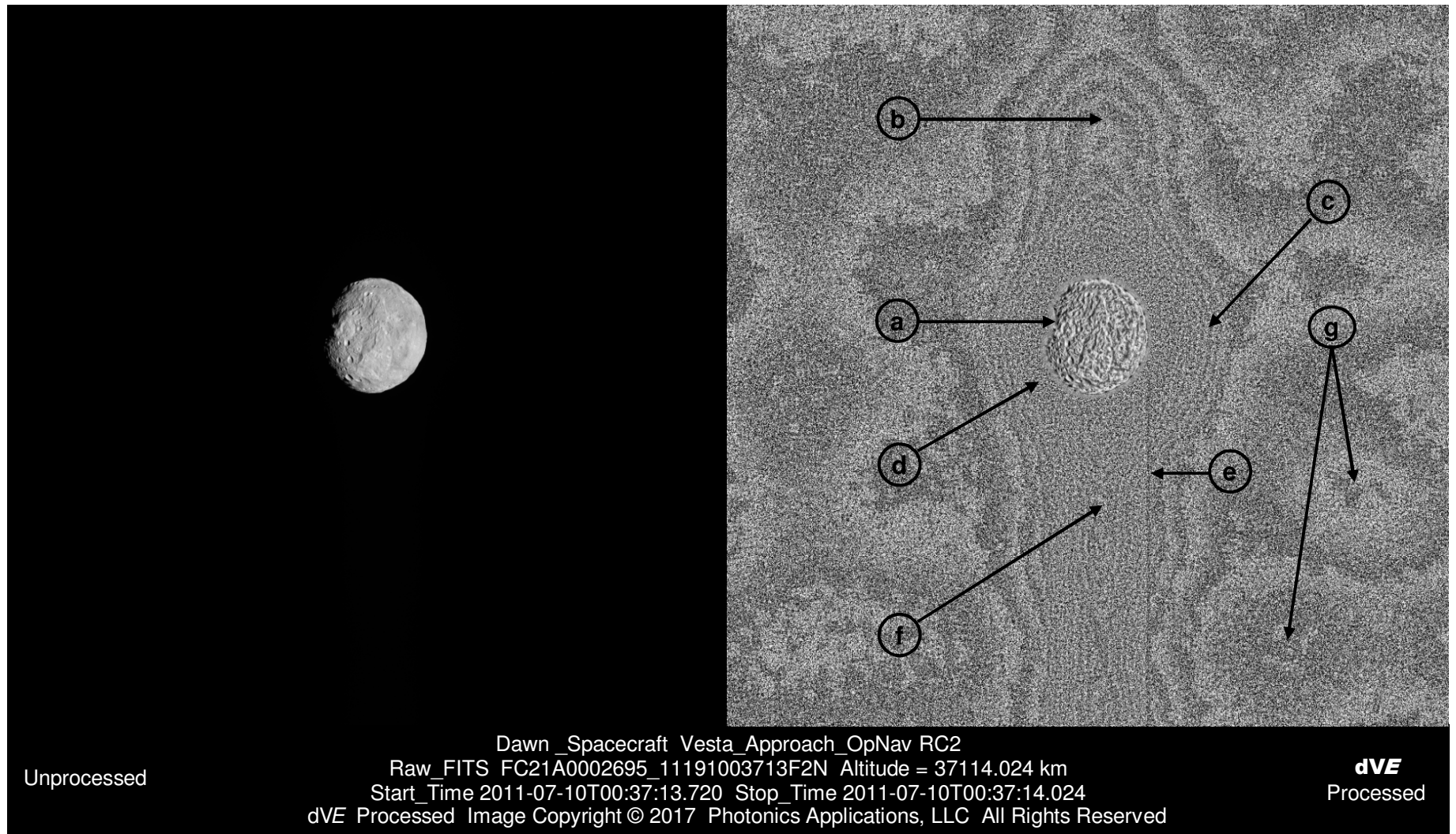


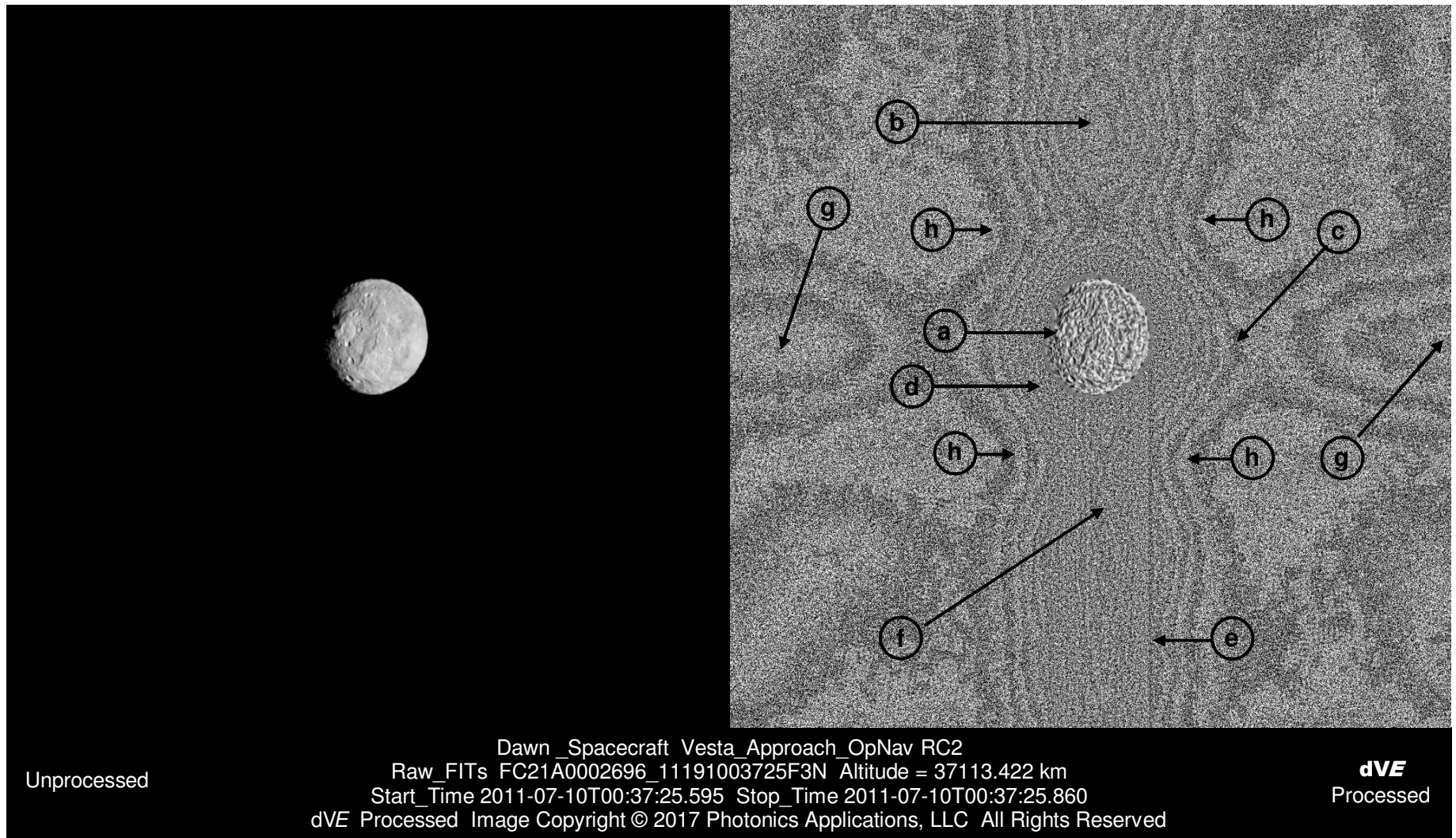
**Figure 1** – Dawn framing camera image of Vesta with selected metadata. Image exposure time is 1.691 s. Left: Unprocessed image shows distant Vesta surrounded by the blackness of space. Right: **dVE** processed Image reveals evidence for collisional fluid dynamics wake and water vapor plume which is not visible in unprocessed image. The solar wind has curved the upper and lower tips of the wake halo.



**Figure 2** – Dawn framing camera image of Vesta with selected metadata. Elapsed time from Figure 1 start time is 38 days 19 hours 51 minutes 48.931 s. Image exposure time is 188 ms. Left – Unprocessed image shows a larger Vesta than Figure 1 due to reduced approach altitude. Right – **dVE** processed Image reveals: a) Vesta with enhanced surface detail, b) a bow wake, c) laminar flow over the surface of Vesta, d) trailing wake with sharp right and left boundaries, e) linear wake striations.

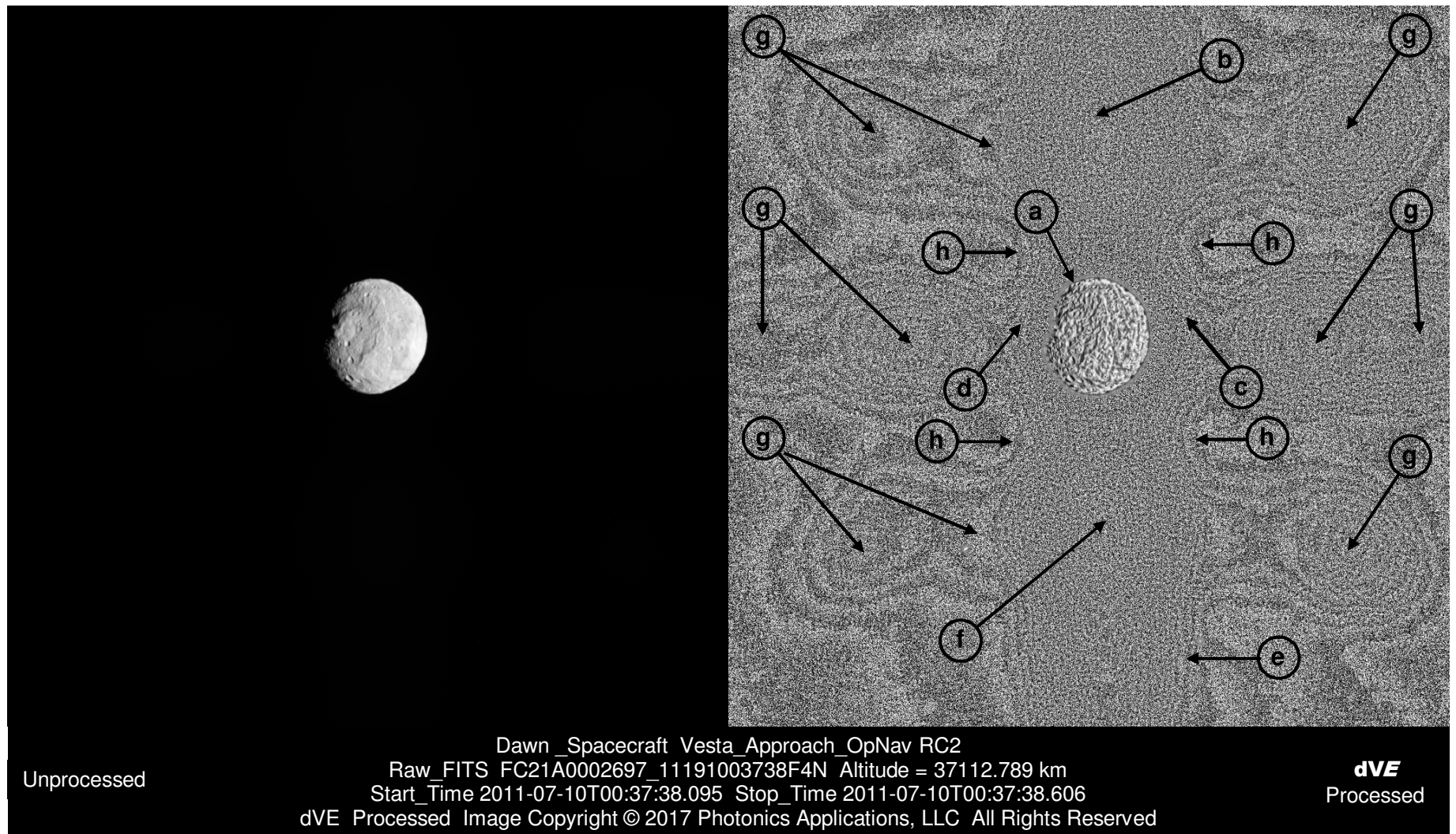


**Figure 3** – Dawn framing camera image of Vesta with selected metadata. Elapsed time from Figure 2 start time is 9 minutes 8.708 s. Image exposure time is 304 ms. Left – Unprocessed image. Right – **dVE** processed Image reveals the onset of turbulence: a) Vesta with enhanced surface detail, b) an enlarged bow wake, c) an expanded laminar flow region, d) disruption of laminar flow which is more pronounced on the left side of Vesta, e) trailing wake, left linear boundary much less pronounced f) the onset of disruption of linear wake striations marking the onset of turbulent flow, and g) the onset of formation of nearly radial structures which will develop into fully-formed vortices.

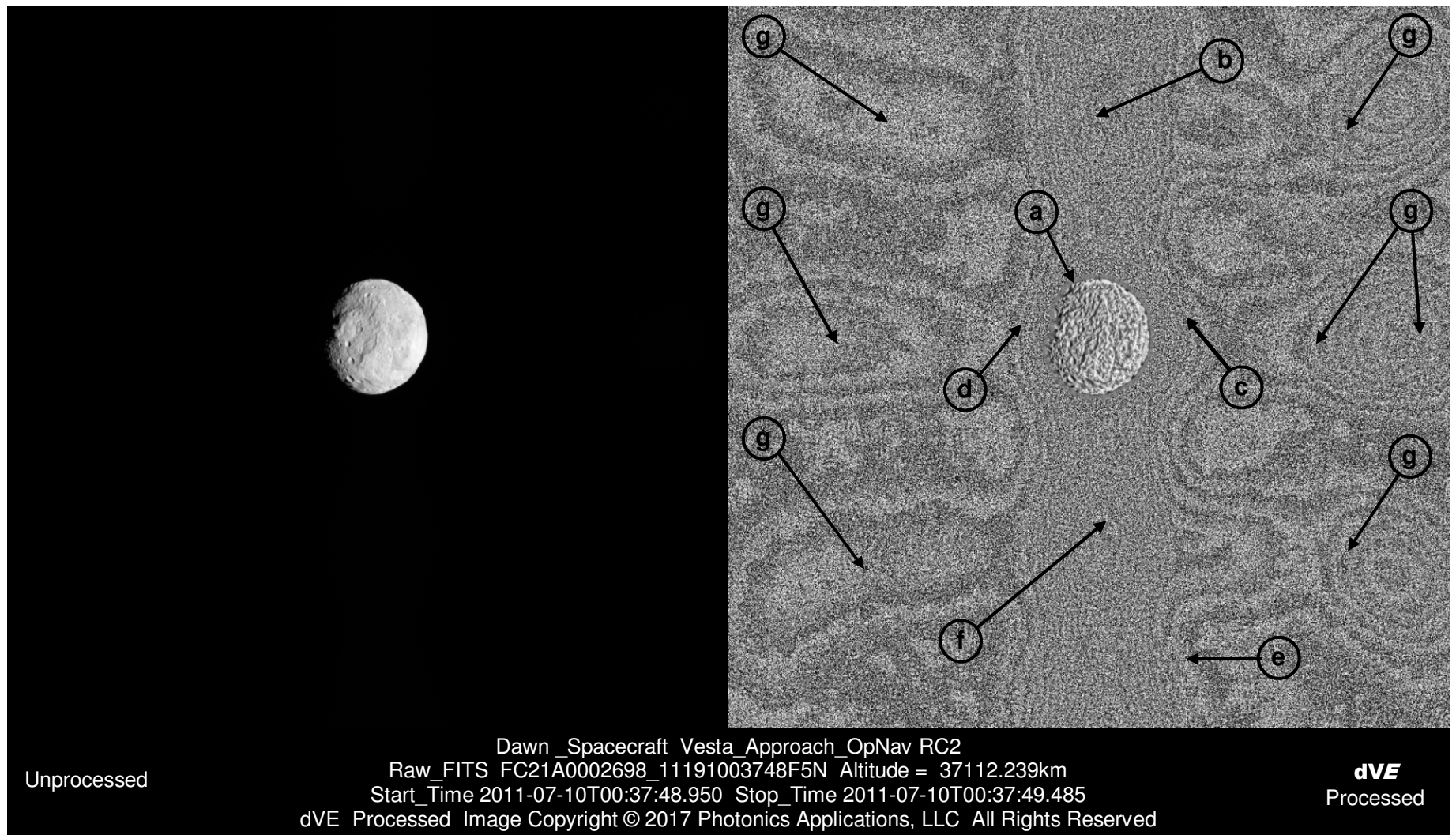


**Figure 4** – Dawn framing camera image of Vesta with selected metadata. Elapsed time from Figure 3 start time is 11.875 s. Image exposure time is 265 ms. Left – Unprocessed image. Right: **dVE** processed Image reveals the continued evolution of wake and turbulence morphology: a) Vesta with enhanced surface detail, b) enlarged bow wake forming vortex-like structure, c) expanded laminar flow region, d) disruption of laminar flow which is more pronounced on the left side of Vesta, e) trailing wake sharp linear left boundary replaced with undulating boundary, f) continued disruption of linear wake striations with transition to turbulent flow, g) shedding of vortices, h) undulations in wake boundary pinching of laminar flow associated with formation of new vortex.

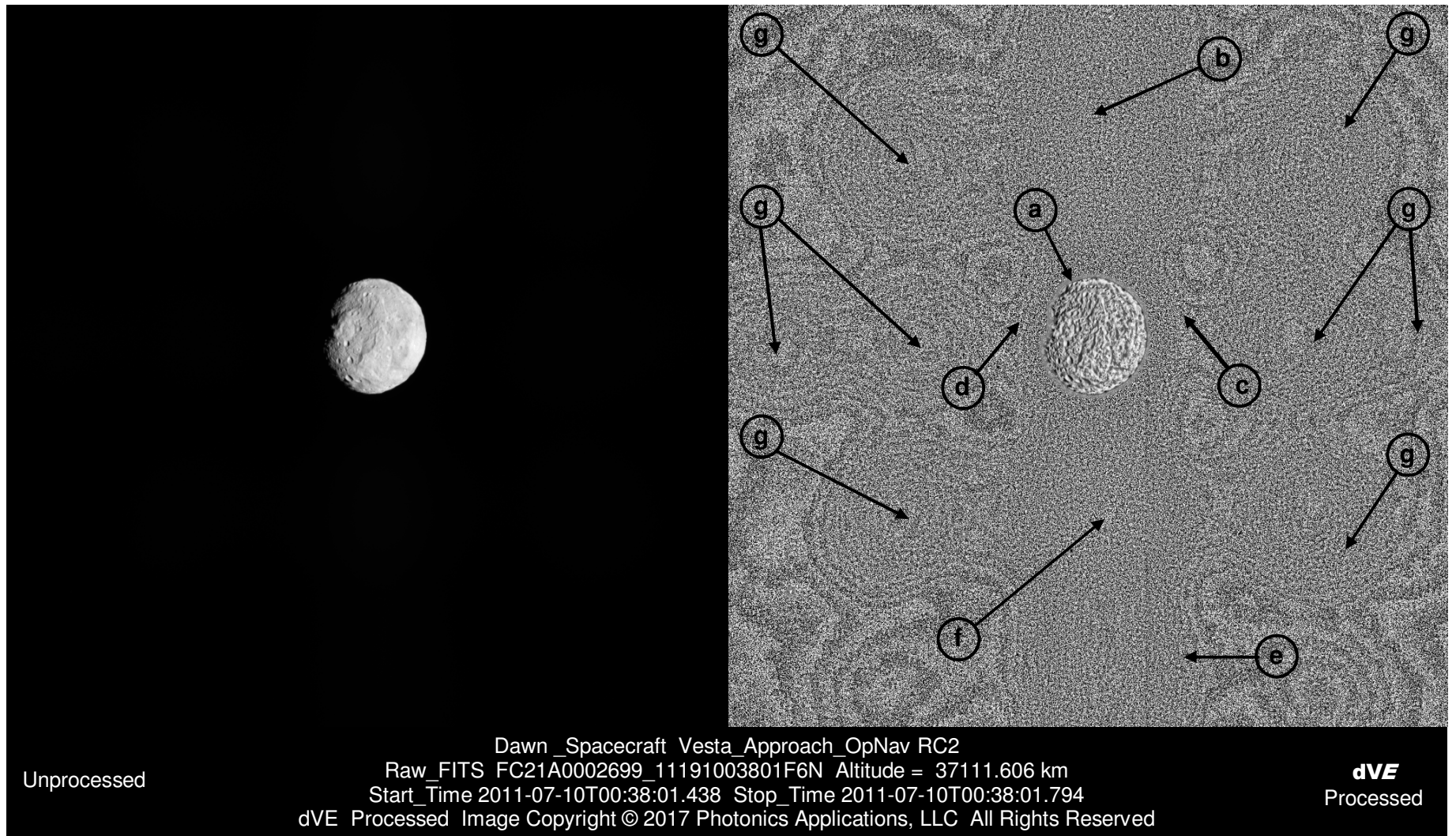




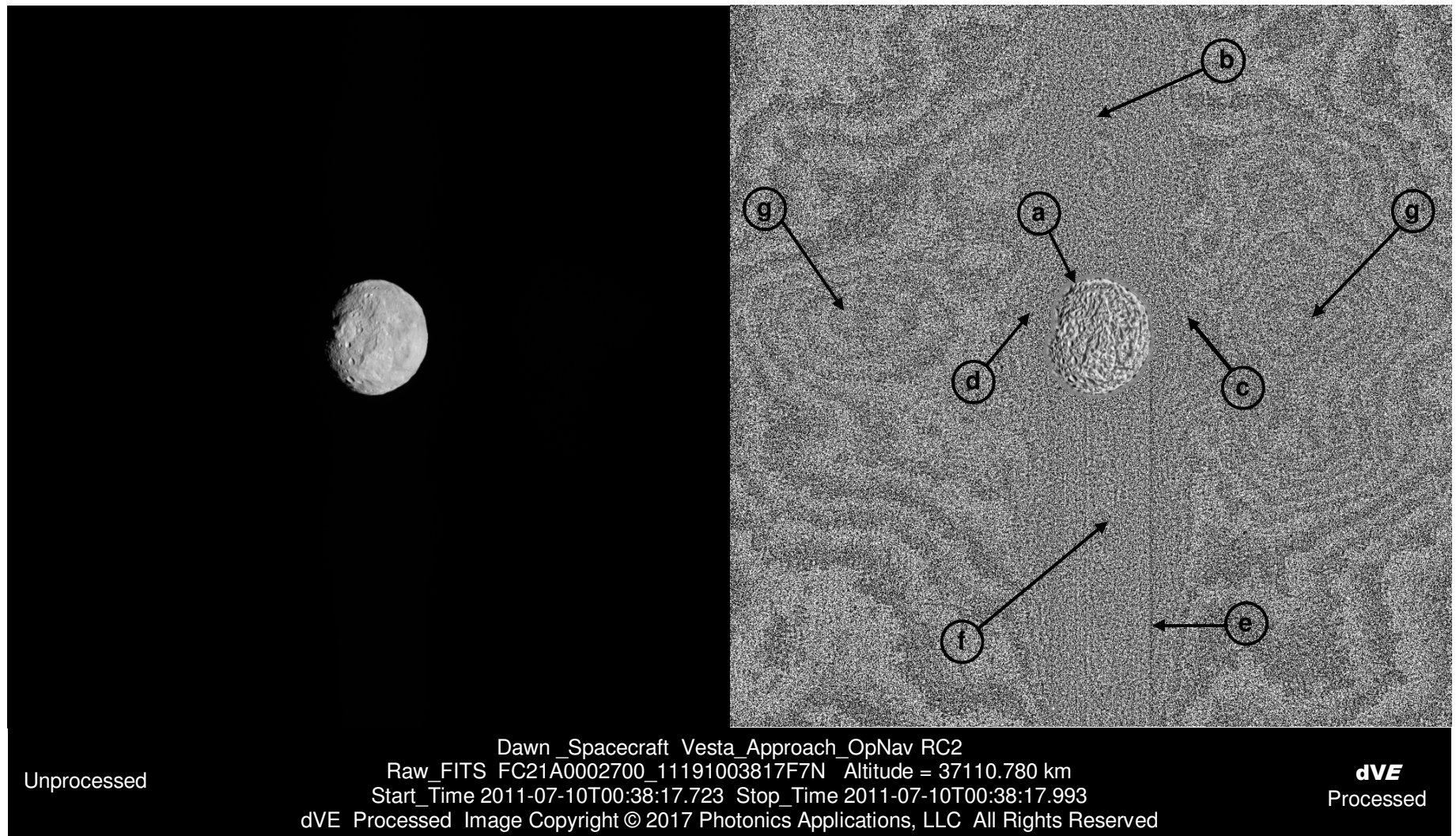
**Figure 5** – Dawn framing camera image of Vesta with selected metadata. Elapsed time from Figure 4 start time is 12.5 s. Image exposure time is 511 ms. Left: Unprocessed image. Right: **dVE** processed Image reveals the continued evolution of wake and turbulence morphology: a) Vesta with enhanced surface detail, b) bow wake vortex-like structure has become turbulent, c) reduced laminar flow, d) reduced laminar flow which is more pronounced on the left side of Vesta, e) complete replacement of trailing wake left and right linear boundaries with undulating boundaries, f) near complete transition to turbulent flow, g) formation of vortices, h) undulations in wake boundary due to pinching of turbulent flow associated with formation of new vortices.



**Figure 6** – Dawn framing camera image of Vesta with selected metadata. Elapsed time from Figure 5 start time is 10.855 s. Left: Unprocessed image. Right: **dVE** processed Image reveals the continued evolution of wake and turbulence morphology: a) Vesta with enhanced surface detail, b) bow wake continues to be turbulent, c) reduced laminar flow, d) reduced laminar flow e) trailing wake, f) continued disruption of linear wake striations with near complete transition to turbulent flow, g) double-vortices on the left hand side of Vesta in Figure 5 merging to form larger oval structures, evidence in support of an inverse Kolmogorov cascade.

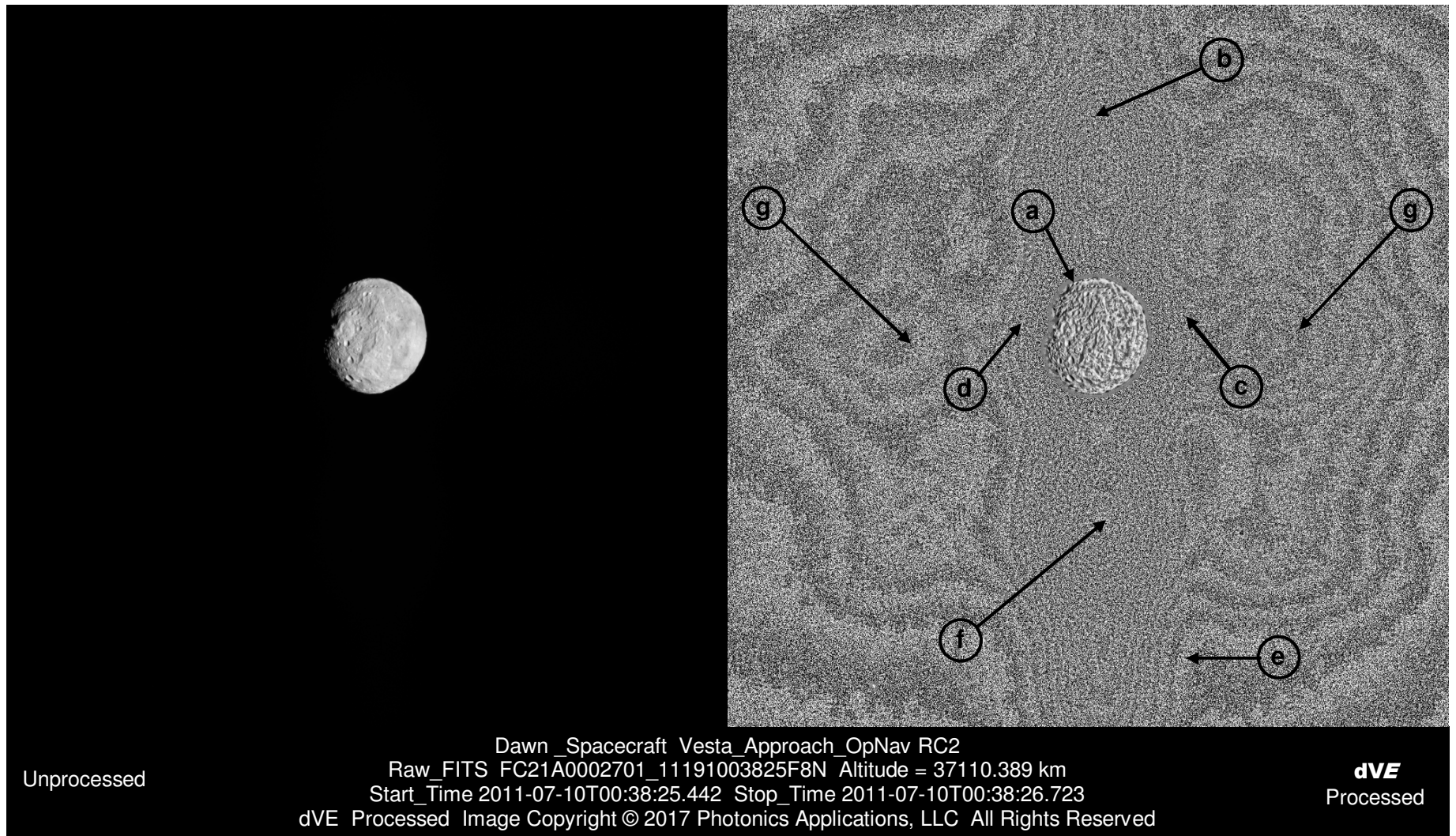


**Figure 7** – Dawn framing camera image of Vesta with selected metadata. Elapsed time from Figure 6 start time is 12.488 s. Image exposure time is 256 ms. Left: Unprocessed image. Right: **dVE** processed image shows a) Vesta, b) continued turbulence in the bow wake, c-d) continued turbulent flow around vesta, e) faint return of the right-hand linear boundary of the trailing wake, f) continued turbulent flow in the trailing wake and g) reappearance of more fully developed vortices, with the onset of vortex merging.

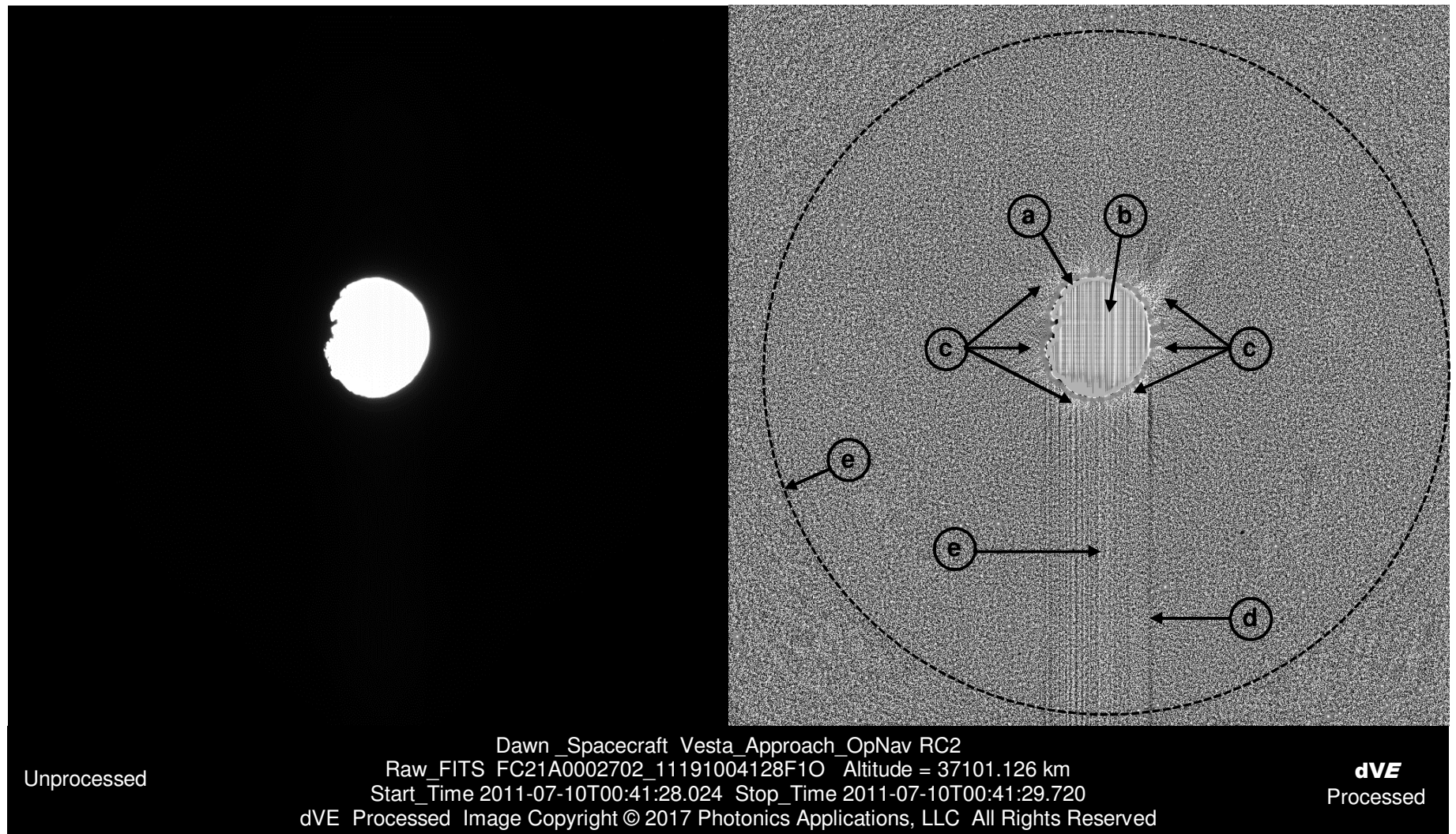


**Figure 8** – Dawn framing camera image of Vesta with selected metadata. Elapsed time from Figure 7 start time is 16.285 s. Image exposure time is 270 ms. Left: Unprocessed image. Right: **dVE** processed image shows a) Vesta, b) reduction of turbulence in the bow wake, c-d) re-emergence of laminar flow around Vesta, e) strong return of the trailing wake right-hand linear boundary and faint return of the left-hand linear boundary, f) trailing wake transitioning from turbulent to laminar flow, and g) the merging of quadruple vortices on the left hand side of Vesta and triple vortices on the right hand side of Vesta to form large-scale outwardly propagating larger-scale structures; phenomenology consistent with and inverse Kolmogorov cascade..





**Figure 9** – Dawn framing camera image of Vesta with selected metadata. Elapsed time from Figure 8 start time is 7.719 s. Image exposure time is 1.281 s. Left: Unprocessed image. Right: **dVE** processed image shows a) Vesta, b) continued reduction of turbulence in the bow wake, c-d) reduction of laminar flow around Vesta, e) trailing wake linear boundaries once again give way to undulations, f) trailing wake transitioning from turbulent to laminar flow suspended, and g) continued formation and expansion of large-scale merged-vortex structures, phenomenology consistent with an inverse Kolmogorov cascade.



**Figure 10** – Dawn framing camera image of Vesta with selected metadata. Elapsed time from Figure 9 start time is 3 min 7.719 s. Image exposure time is 1.696 s. Left: Unprocessed image. Right: **dVE** processed image shows a) Vesta with no visible bow wake or laminar flow over the surface suggesting that the drivers of collisional fluid dynamics visible in prior images are not significantly in play, b) a high-exposure surface image that contains vertical and horizontal striations and is near but has not reached saturation, c) possible water vapor plumes reaching an altitude of up to a Vesta radius, d) linear boundary of trailing wake formed by motion of Vesta through the water vapor plumes, e) trailing wake water vapor density striations, f) nominal boundary containing a relatively quiescent volume of space about Vesta; outside the boundary a more pronounced filamentary spatial structure is visible.