

## Central American Pacific Coast

### Overview

The Pacific coast of Central America extends approximately 3700 km from central Mexico (20°N, 106°W) to the edge of South America (7°N, 78°W). A significant continental shelf exists from the Gulf of Tehauntepec down to the Gulf of Panama. The region is situated between the California and the Humboldt Currents.

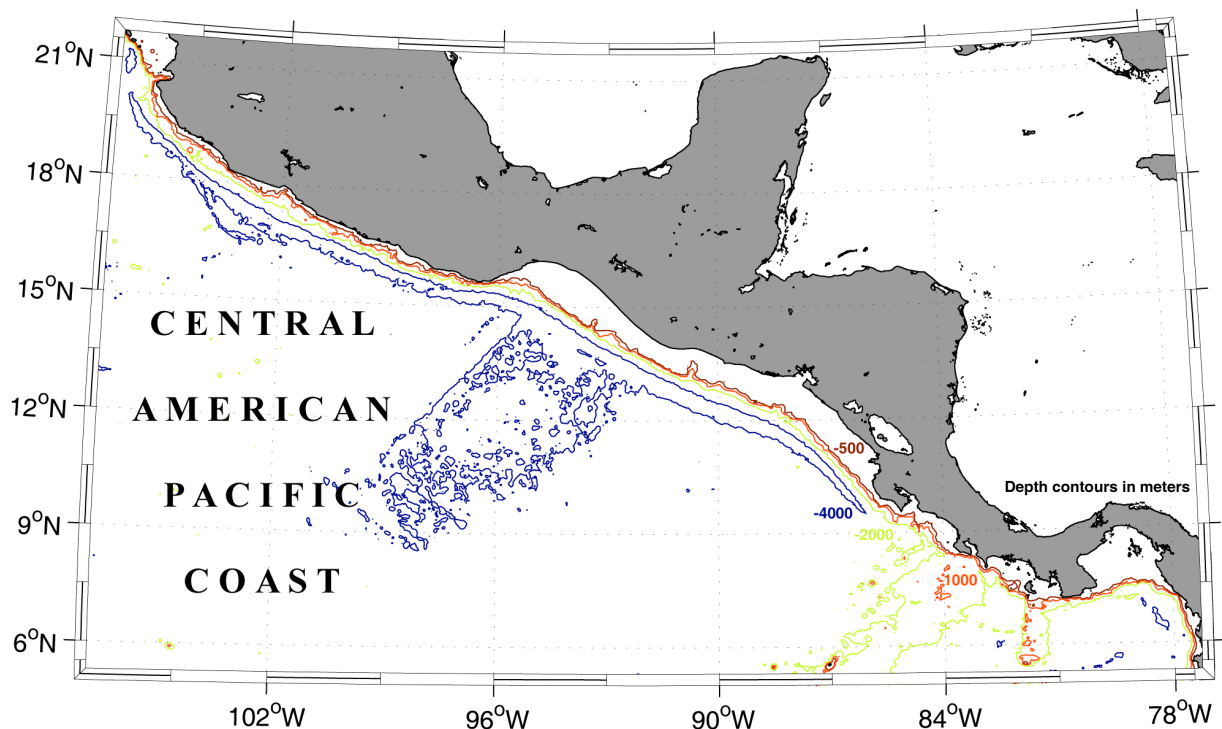


Figure 1. Bathymetry of the Pacific Coast of Central America [Smith and Sandwell, 1997]

### Observations

There has been little scientific research on the internal waves along the Central American Pacific Coast. Examination of satellite imagery indicates that the internal waves occur along the southern half of the coast where the continental shelf is more significant. The imagery also reveals internal waves propagating both toward and along the coast. The signatures become more complex and move further seaward in the area around the Cocos Ridge.

Table 1 shows the months of the year when internal wave observations have been made.

Table 1 - Months when internal waves have been observed along the Pacific Coast of Central America.  
(Numbers indicate unique dates in that month when waves have been noted)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
7	8	6	4	4	1	0	1	1	3	5	0

## References

Smith, W. H. F., and D. T. Sandwell, 1997; Global seafloor topography from satellite altimetry and ship depth soundings, *Science*, v. **277**, 1957-1962  
[http://topex.ucsd.edu/marine\\_topo/mar\\_topo.html](http://topex.ucsd.edu/marine_topo/mar_topo.html)

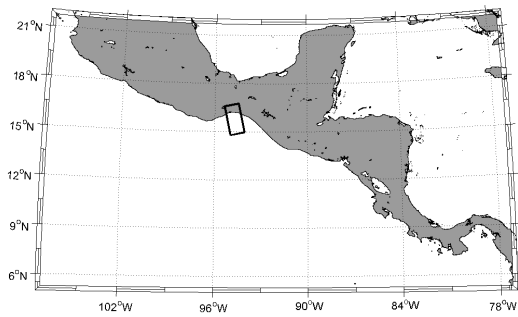


Figure 2. ERS-2 (C-band, VV) SAR survey image of the Gulf of Tehuantepec acquired on 30 March 1996 at 0450 UTC (orbit 4926, frames 297 and 315). The image shows the signature of several internal wave packets propagating shoreward. Imaged area is 100 km x 200 km. ©ESA 1996.



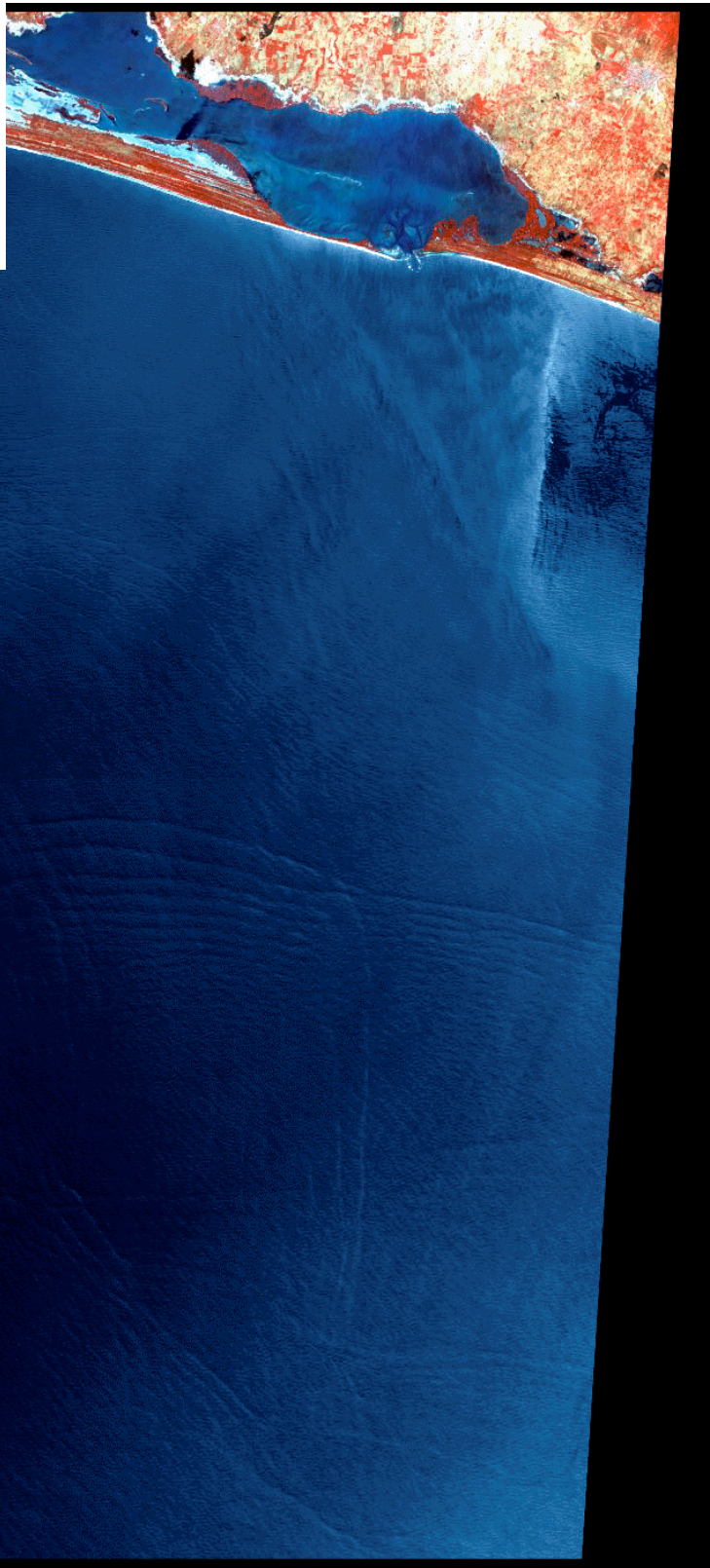
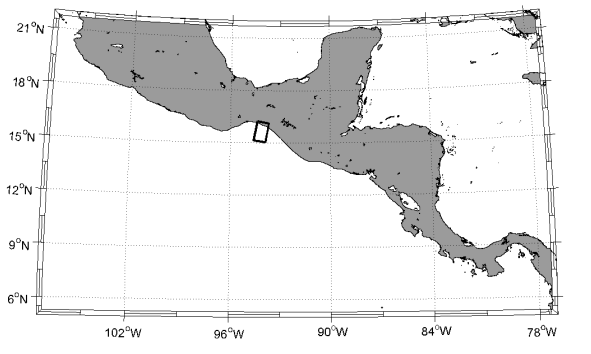


Figure 3. ASTER false-color VNIR image over the Gulf of Tehuantepec acquired on 19 March 2001 at 1710 UTC. The image shows the signature of several shelf break generated internal wave packets propagating shoreward. Imaged area is 60 km x 120 km.



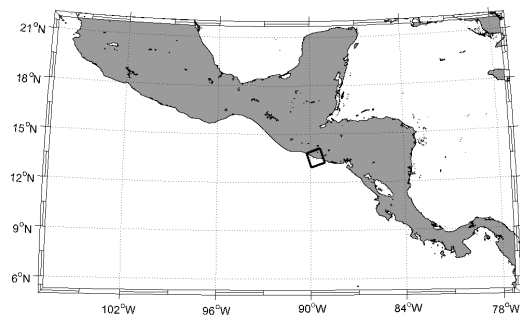
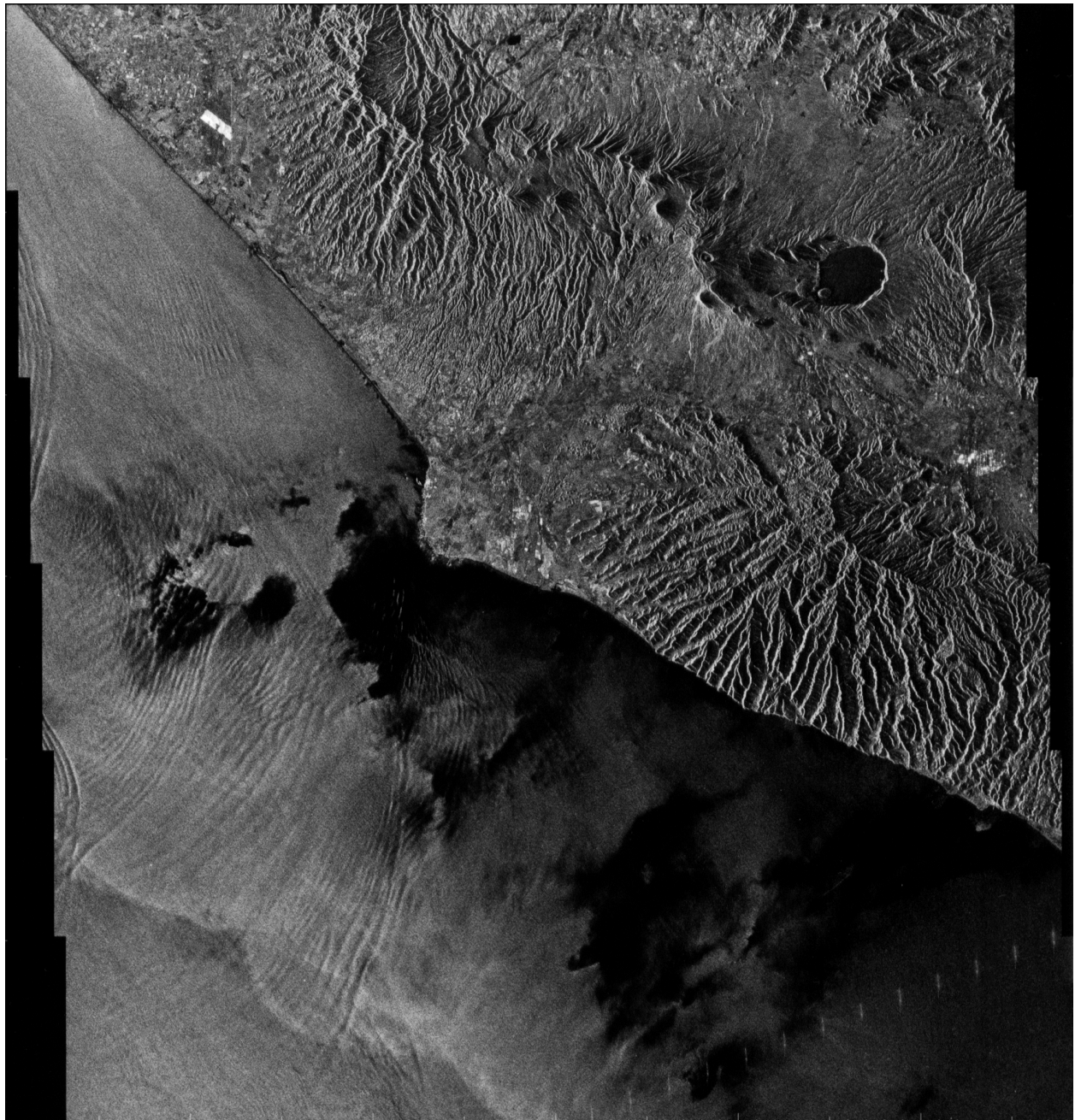


Figure 4. SEASAT (L-band, HH) SAR image near the coast of Guatemala acquired on 19 September 1978 at 1616 UTC (Rev 1211). The image shows the signature of internal waves propagating both toward and along the coast. Imaged area is approximately 100 km x 100 km [Image courtesy of NASA JPL]



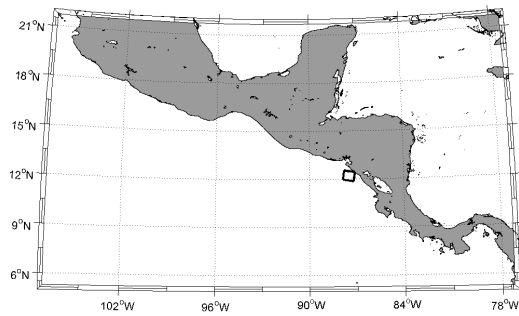
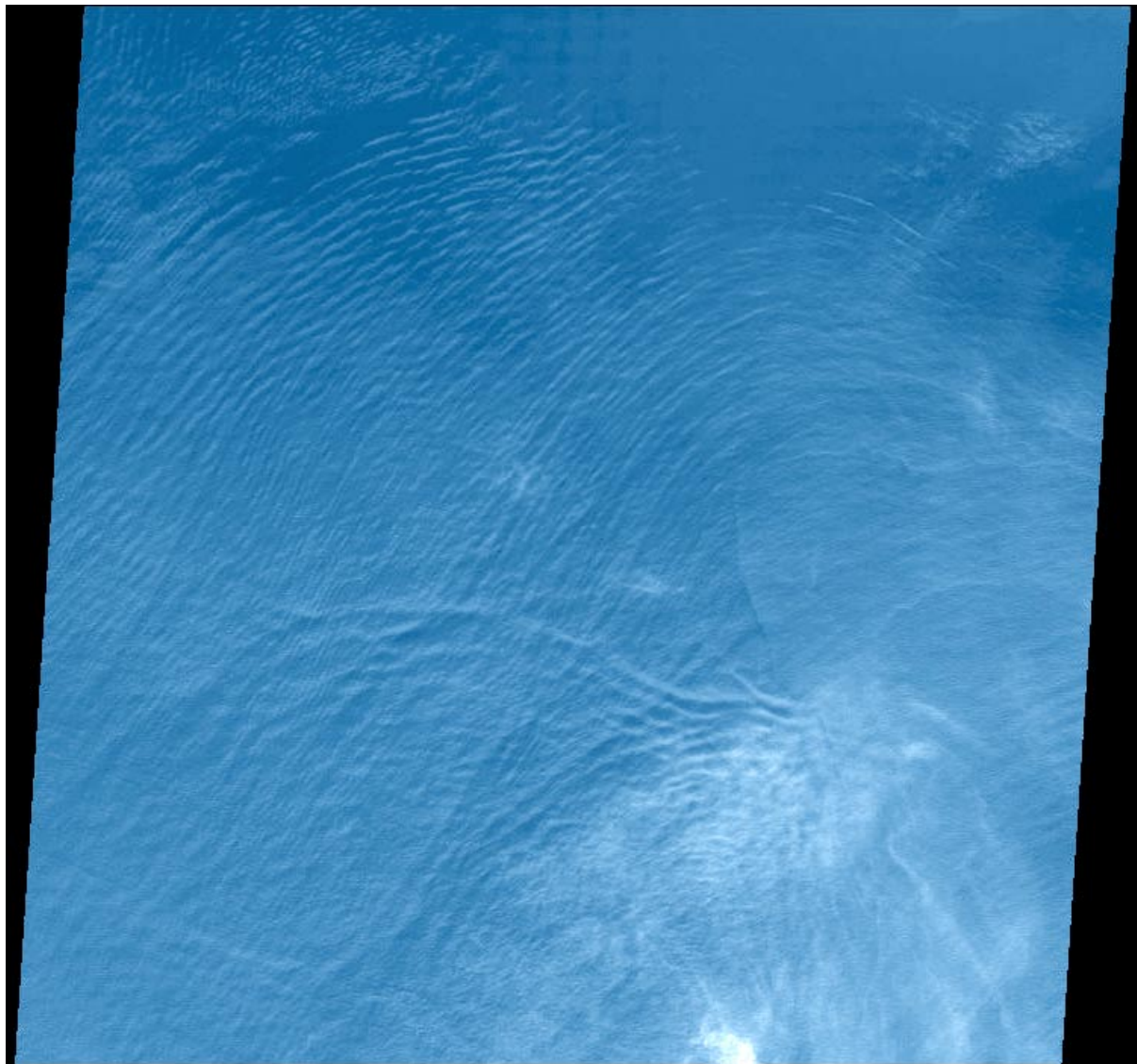


Figure 5. ASTER false-color VNIR image over the coast of Nicaragua acquired on 14 November 2002 at 1630 UTC. The image shows the signature of several internal wave packets propagating shoreward. Several soliton-soliton interactions are visible. Imaged area is 60 km x 60 km.





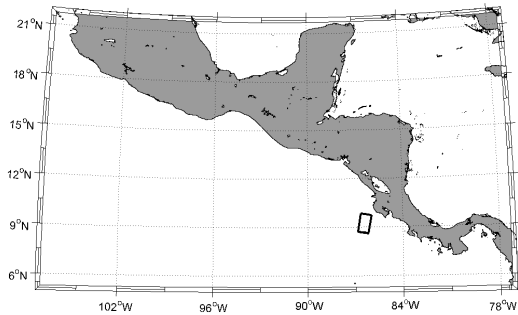
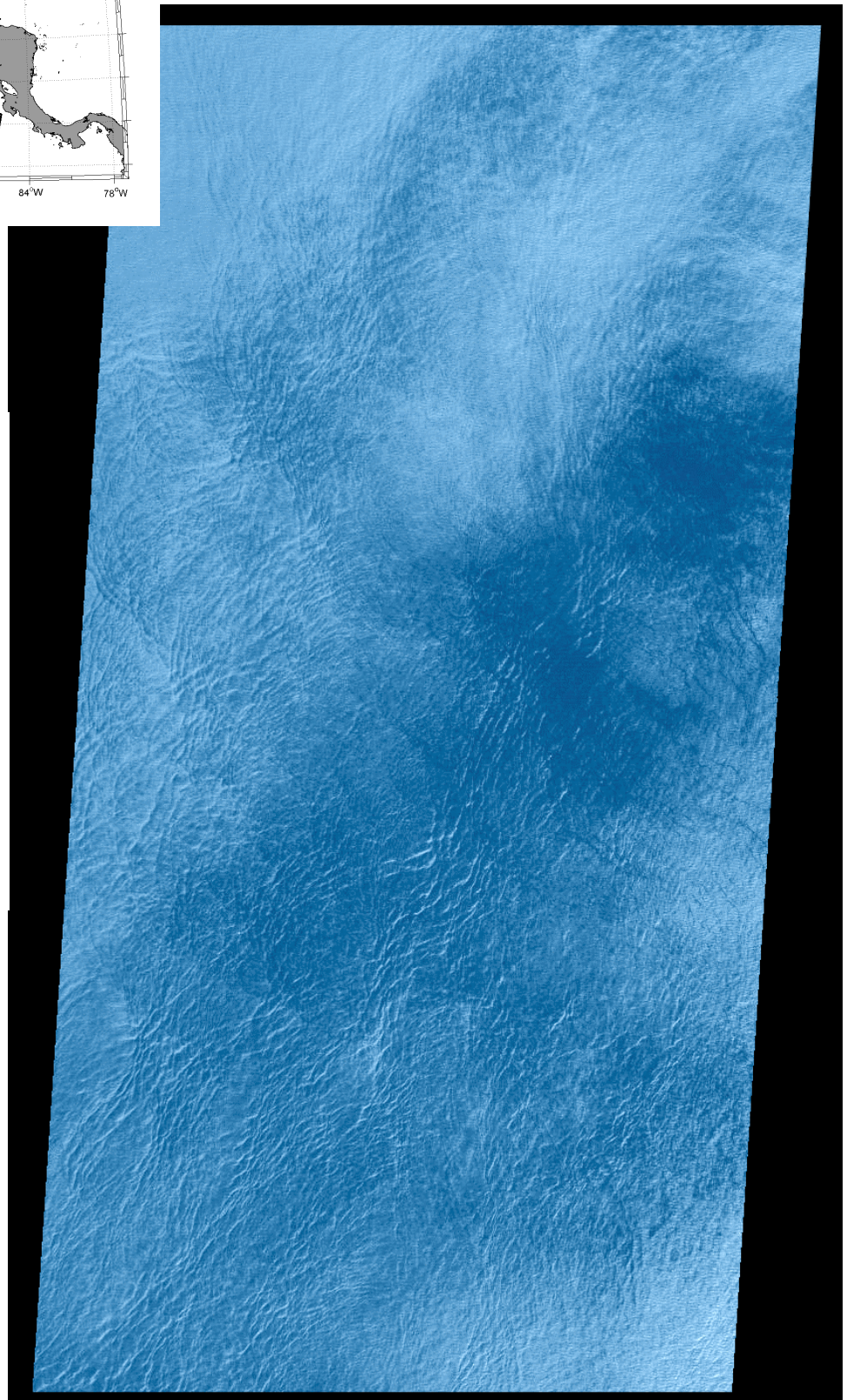


Figure 6. ASTER false-color VNIR image off the coast of Costa Rica acquired on 8 February 2002 at 1626 UTC. The image shows the signature of a large internal wave field propagating to the northwest. Imaged area is 60 km x 120 km.





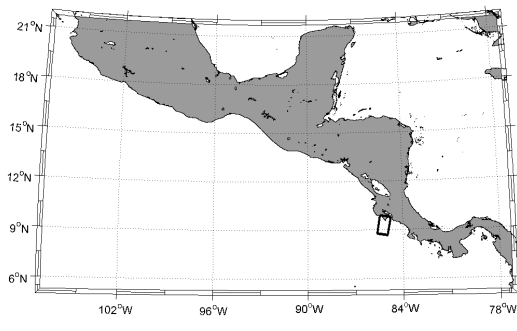
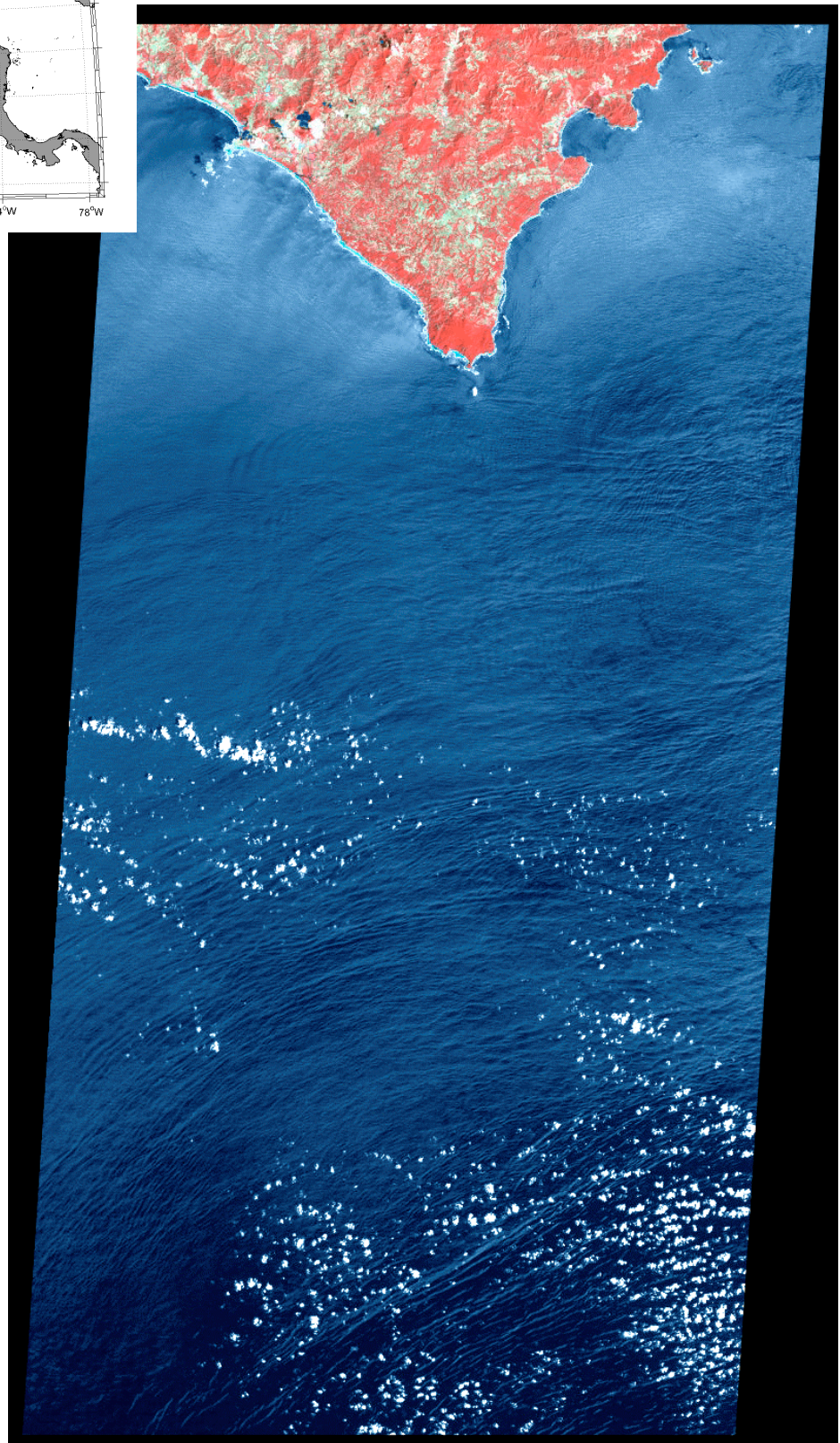


Figure 7. ASTER false-color VNIR image near the coast of Costa Rica acquired on 14 February 2001 at 1630 UTC. The image shows the signature of several fine scale internal wave packets propagating shoreward. Imaged area is 60 km x 120 km.





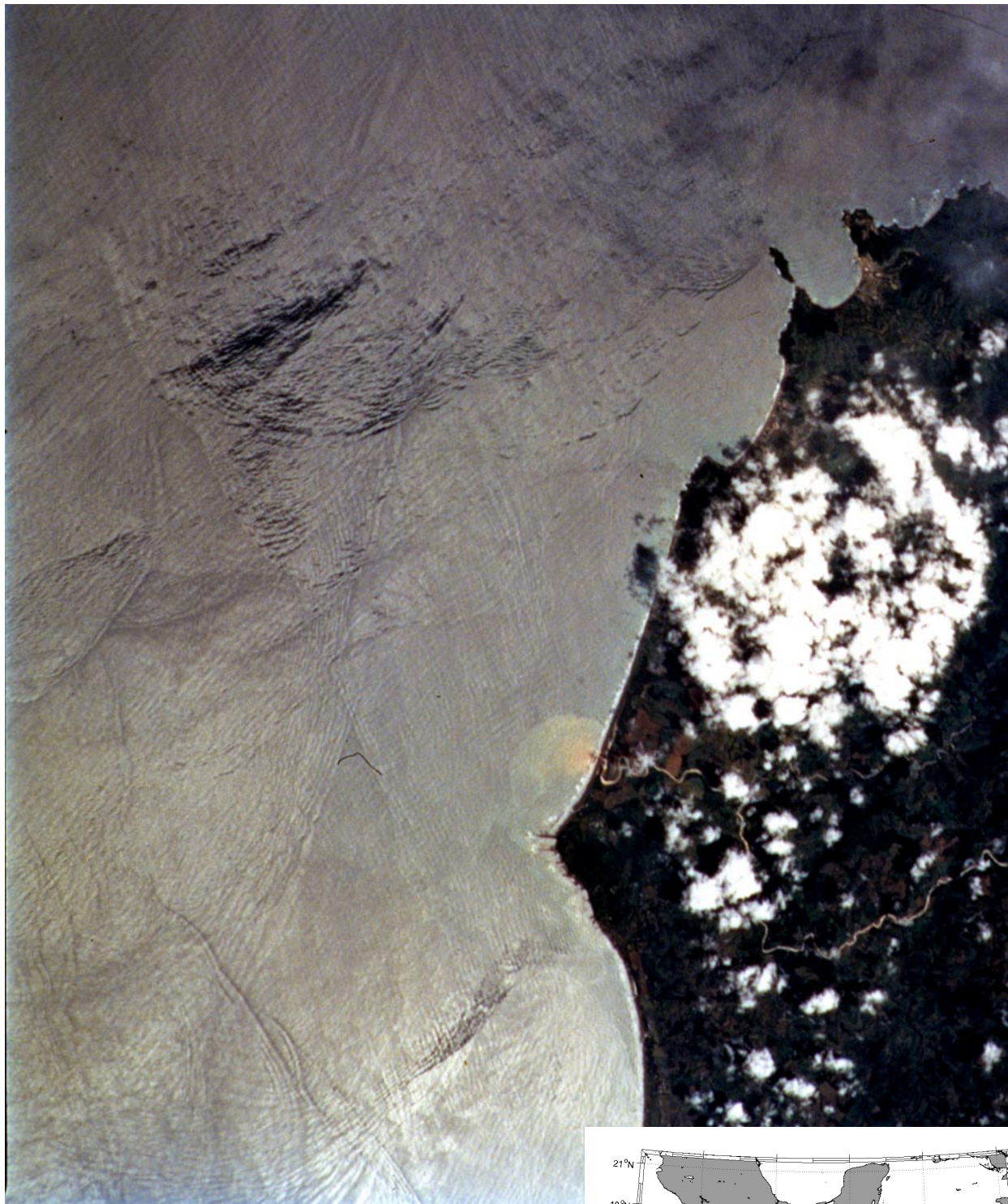
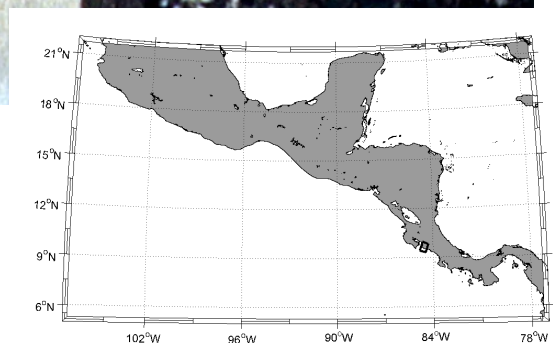


Figure 8. Astronaut photograph (STS111-722-73) over the Gulf of Nicoya acquired on 16 June 2002 at 1611 UTC. The image shows the signature of shoreward propagating internal wave packets in the sunlint region. Imaged area is approximately 25 km x 55 km. [Image Courtesy of Earth Sciences and Image Analysis Laboratory, NASA Johnson Space Center (<http://eol.jsc.nasa.gov>)]





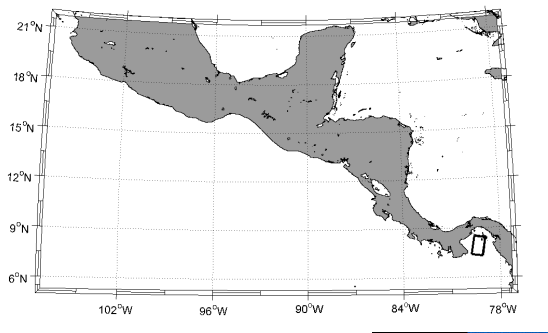
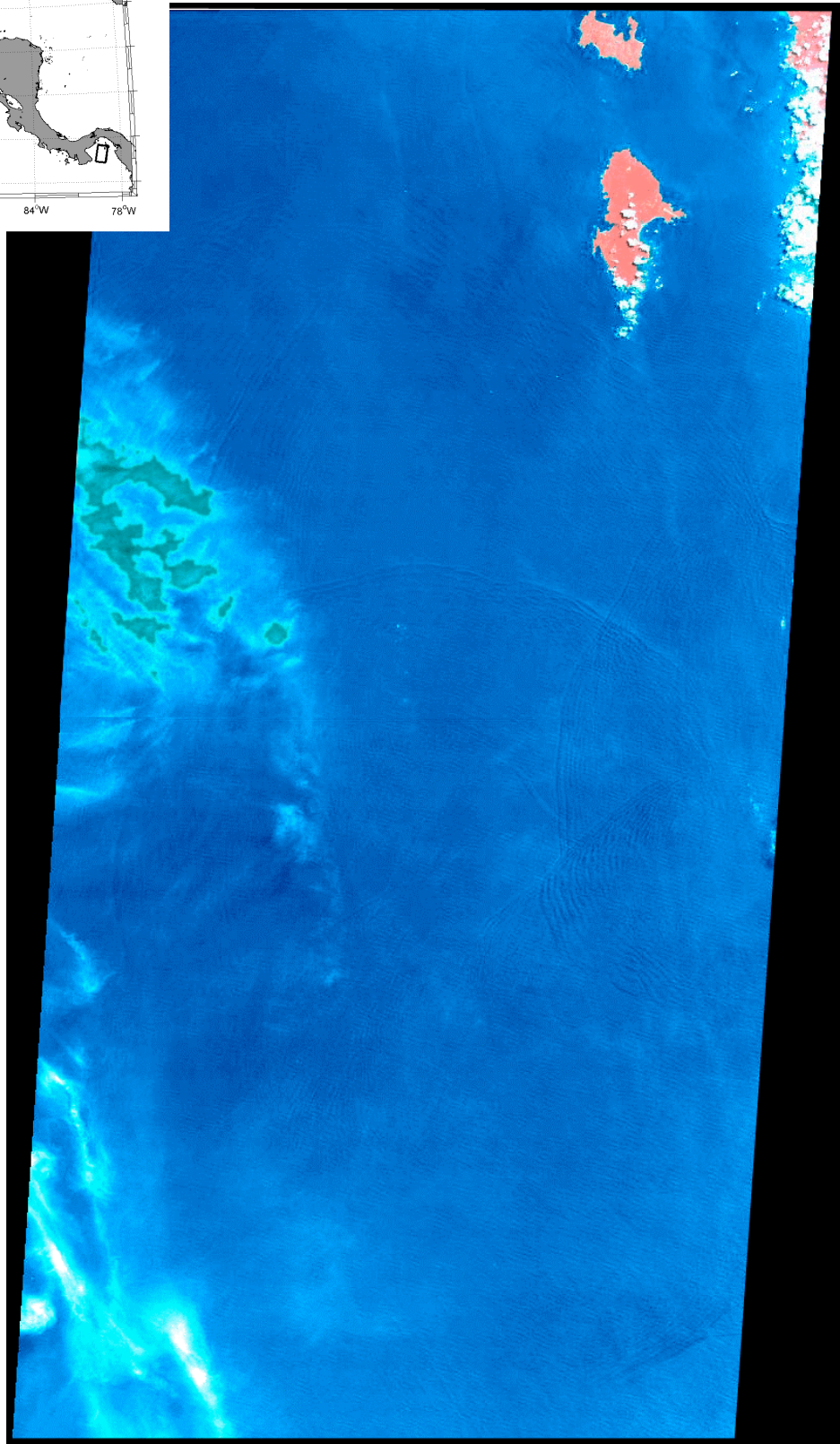


Figure 9. ASTER false-color VNIR image of the Gulf of Panama acquired on 5 May 2002 at 1549 UTC. The image shows the signature of several fine scale internal wave packets propagating in a variety of directions. Imaged area is 60 km x 120 km.





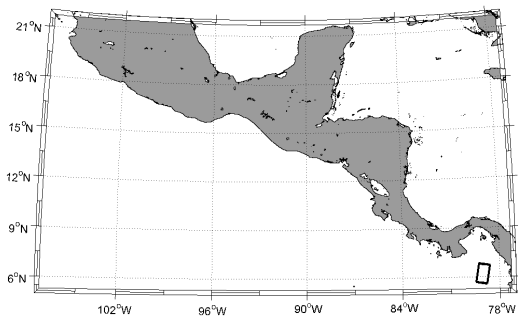
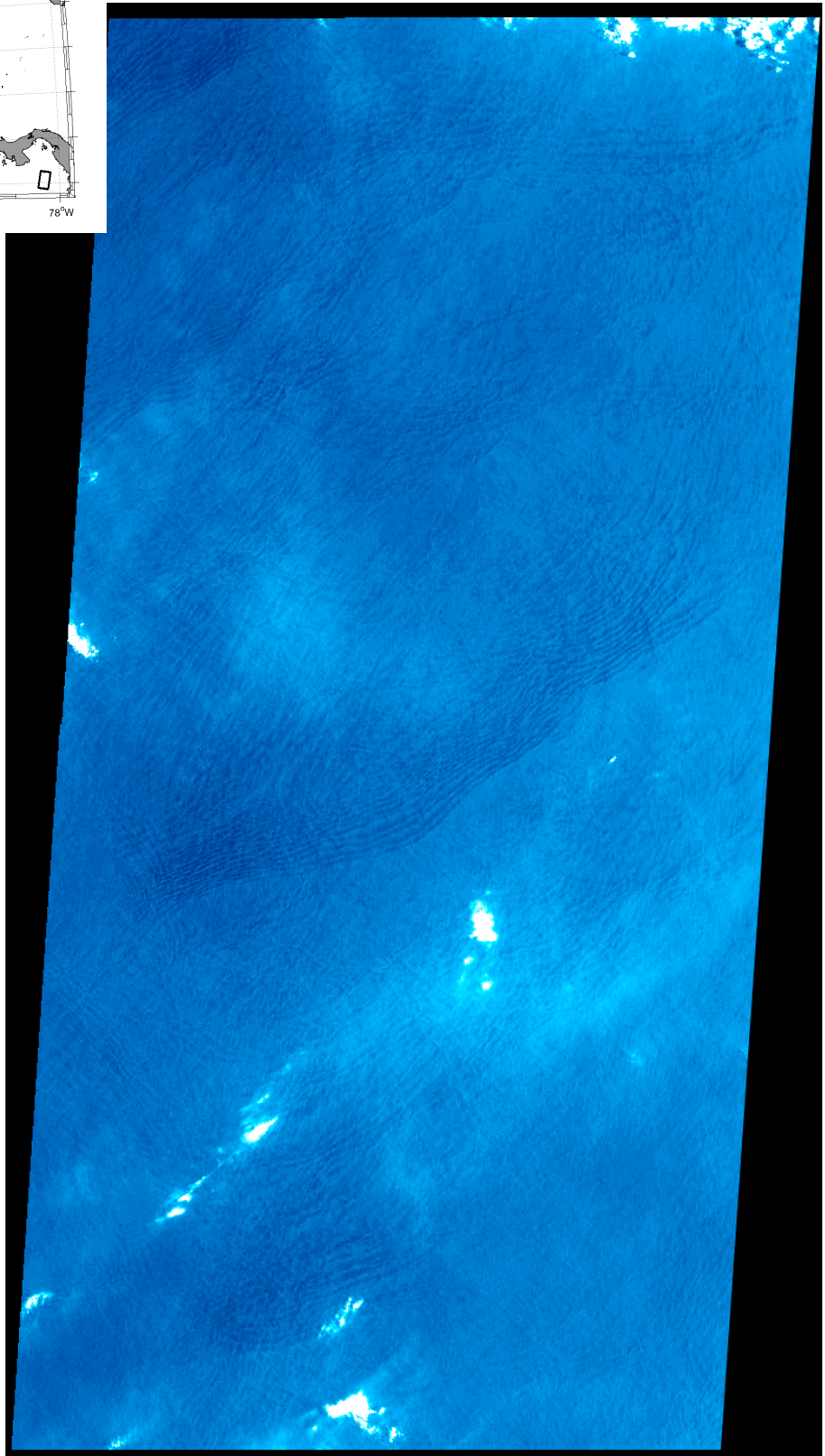


Figure 10. ASTER false-color VNIR image off the coast of Panama acquired on 18 March 2002 at 1549 UTC. The image shows the signature of fine scale internal wave packets propagating seaward. Imaged area is 60 km x 120 km.



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