



## Abstract View

[Volume 16, Issue 2 \(February 1986\)](#)

### Journal of Physical Oceanography

Article: pp. 209–222 | [Abstract](#) | [PDF \(1.13M\)](#)

# The Subarctic and Northern Subtropical Fronts in the Eastern North Pacific Ocean in Spring

**Ronald J. Lynn**

*NOAA/National Marine Fisheries Service, Southwest Fisheries Center, La Jolla, CA 92038*

(Manuscript received May 28, 1981, in final form August 5, 1985)

DOI: 10.1175/1520-0485(1986)016<0209:TSANSF>2.0.CO;2

### ABSTRACT

The subarctic and subtropical frontal zones of the eastern North Pacific Ocean were surveyed in June for five consecutive years starting in 1972. These surveys form the basis for a description of the complex frontal distributions and their year-to-year differences. The fronts appear as surface outcroppings of haloclines: the subarctic halocline where salinity increases with depth and the subtropical halocline where the opposite prevails. Between the fronts lies a transition zone where strong vertical gradients of salinity are generally absent. An examination of the northern boundary of subtropical waters in this new dataset reveals the presence of two major fronts in the subtropical frontal zone. In addition to the front commonly identified as the subtropical front (18°C and 34.8‰) is a northern subtropical front that forms the northern boundary of the subtropical halocline in the eastern North Pacific. It falls some 2° to 3° of latitude north of the subtropical front and is the same front observed by Roden which he termed the “34°N front”. There is evidence that this front is quasi-continuous over great distances like the other major fronts of the temperate zone. Its temperature-salinity characteristics, 14° to 17°C and 34.4 to 34.6‰, are also those of Kuroshio front in Kuroshio Extension. Narrow cores of extra-high salinity that indicate current jets occur at the high-salinity side of the northern subtropical front and, sometimes, the subarctic front. Geostrophic flow is often locally intensified about the fronts. The many salinity features are closely associated with the velocity patterns, indicating the complexity of advection and suggesting, at times, a banded structure in the current field. In June 1972, 1973 and 1976 the frontal gradients were strongly developed; in June 1974 they were diffused and broken. These findings agree with Saur's time-series study of surface salinity gradients along a track crossing the same area and concurrent in time.

#### Options:

- [Create Reference](#)
- [Email this Article](#)
- [Add to MyArchive](#)
- [Search AMS Glossary](#)

#### Search CrossRef for:

- [Articles Citing This Article](#)

#### Search Google Scholar for:

- [Ronald J. Lynn](#)



© 2008 American Meteorological Society [Privacy Policy and Disclaimer](#)

Headquarters: 45 Beacon Street Boston, MA 02108-3693

DC Office: 1120 G Street, NW, Suite 800 Washington DC, 20005-3826

[amsinfo@ametsoc.org](mailto:amsinfo@ametsoc.org) Phone: 617-227-2425 Fax: 617-742-8718

[Allen Press, Inc.](#) assists in the online publication of *AMS* journals.