Some features of Peter the Great Bay hydrological regime in fall-winter period Tasparanea (The Wranson G. I. Yurasov, N.I.Rudykh V.I.II'ichev Pacific Oceanological Institute (POI FEB RAS), 43 Baltiyaskya St., Vladivostok, 690041, Russia. E-mail: yurasov@poi.dvo.ru rudykh@poi.dvo.ru

Two complex surveys in November-December 1999 and in March 2000, and more frequent conductivitytemperature-depth (CTD) observations along 132°E.



Data

Main factors controlled the distribution of temperature and salinity

convection
upwelling of intermediate water
advection of freshened water by the Primorye Current.

Date 1999	Time	Air temperature (°C)	Wind speed (м/c)	Wind direction range (degree)
23.11	0 -12	-	-	-
	12 - 24	6.9	4.8	160 - 170
24.11	0 -12	6.4	4.0	150 - 180
	12 - 24	-4.2	14.5	350 - 360
25.11	0 -12	-10.4	15.8	350 - 360
	12 - 24	-11.4	12.0	340 - 360
26.11	0 -12 12 - 24	-10.0 -11.7	10.0 4.2	$ 10 - 350 \\ 10 - 350 $
27.11	0 -12	-9.2	6.8	300 - 330
	12 - 24	-7.9	4.5	320 - 340
28.11	0 -12	-8.8	5.8	20 - 340
	12 - 24	-10.0	3.5	30 - 360
29.11	0 -12	-9.4	6.8	290 - 330
	12 - 24	-5.5	5.0	220 - 320
30.11	0 -12	-2.8	6.5	220 - 290
	12 - 24	-4.8	5.8	310 - 360
1.12	0 -12	-7.1	4.0	10 - 200
	12 - 24	-2.3	6.9	130 - 160
2.12	0 -12	-2.1	7.0	200 - 350
	12 - 24	-7.8	9.2	350 - 360
3.12	0 -12	-11.0	8.0	350 - 360
	12 - 24	-9.4	6.8	10 - 360



November is period of transition from fall to winter, northwestern monsoon strengthen in this time. This process is intermittent.

(Data of Vladivostok meteo station)



Variability of temperature and salinity vertical profiles in specified points during the measurements period (stations 1, 2 – beginning, and stations 103, 102 - end of survey, respectively).



Autumnal stratification changed to a winter quasi-homogenous structure within several days in late November Temperature and salinity distribution at the sea surface and the seabed of Peter the Great Bay, 1999 November 23 – December 3



Sharp distinctions west and east part of the bay is explained by asynchronous survey in this time. At the beginning convection and cooling in Amur bay did not reach bottom.





Temperature and salinity distribution at the sea surface and the seabed of Peter the Great Bay, 2000 March 4-12



In winter, a bottom layer with high density formed due to brine rejection, ice formation and subsequent convection. This water spread from the Amur Bay to the southern part of the Ussury Bay, ...then to the shelf edge and along the continental slope it down to the deep basin.



Salinity and temperature sections along 132°E





There are shown sequential reconfiguration temperature and salinity vertical distribution in fall-winter season.

SUMMARY

- Transition from fall stratification to winter quasihomogenous structure takes place in late November and occurs during some days.
- In winter season due to brine rejection during ice formation and following convection in the bottom layer the dense water is being formed. This water extends from the Amursky Bay into the southern part of the Ussury Bay and farther along the continental slope to intermediate depths.
 - Completion of a winter season in late March and beginning of spring are characterized both temperature rise, and decrease of salinity in open waters of the bay, that is caused by weakening of winter monsoon, augmentation of run of heat and intensifying of advection into the bay the water of the Primorsky Current.

