

of 19 wells and its KSD contour map is shown in fig.5. From the map we can find that in the northwest of the optimization area, the KSD is quite small, even less than 0.5. This is because that there is landing funnel distributed in this area(see fig.6); In order to monitor the dynamic distribution situation of it, more wells are added at there. Except for this area, the KSD of the rest optimization area is between 0.5 to 0.77, which meets the optimization requirement.

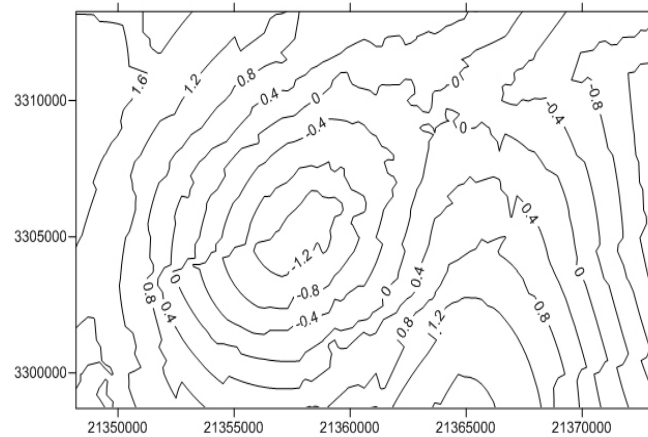


Fig. 6 Contour map of water level of the second confined aquifer

Conclusion

The method of Kriging based on the geo-statistics can quantitatively evaluate the rationality of groundwater monitoring network effectively. The paper optimizes the monitoring network of the deep pore confined water in Ningbo plain by the software Surfer' Kriging module, which is easily operated and avoids the cumbersome to write programs. To be sure, the method used in this paper is only suitable for these stable regions where they are almost not be disturbed, that is in these regions ,the groundwater flows by instinct. For those complicated regions where are hardly affected by the human beings and environment, in order to improve the calculation accuracy, the optimization of their monitoring network should build a new Kriging model which is restrained by a variety of constraints in future research.

References

- [1] Tao Yue-zan, Zhen Heng-qiang, Wang Xue-fu. Assessment of groundwater monitoring network density by the Kriging method. *Journal of hydrological*, 2003, 23(2): 46-48. (in Chinese)
- [2] Wang Ai-ping, Yang Jian-qing. The groundwater monitoring present situation analysis and prospect in our country. *Journal of hydrological*, 2010, 30(6): 53-56. (in Chinese)
- [3] Dai Chang-lei, Chi Bao-ming. Research progress of groundwater monitoring. *Journal of research of soil and water conservation*, 2005, 12(2): 86-88.(in Chinese)
- [4] Hou Jing-ru. *Practical geological statistics*. Beijing, Geology Publishing House, 1998-07.
- [5] Zhou Yang-xiao, Li Wen-peng. Design of regional groundwater level monitoring networks. *Journal of hydrogeology and engineering geology*, 2007(1): 1-9. (in Chinese)
- [6] Wu Xue-wen, Yan Lu-ming. Setting Parameters and Choosing Optimum Semivariogram Models of Ordinary Kriging Interpolation—A case study of spatial interpolation to January average temperature of Fujian province. *Journal of geo-information science*, 2007, 9(3): 104-108. (in Chinese)