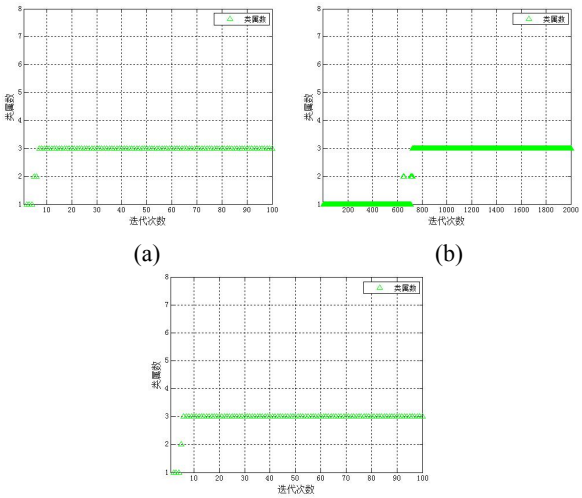
algorithm convergence, respectively taken 100 times, 2000 times and 100 times iteration. The image shown that proposed algorithm is convergence from 10 times, 700 times, 10 times. The final number of class is 3, 3, and 4. After that the number of class is remain the same. This suggests that proposed algorithm can converge to the optimal class.

Table 1 Accuracy of segmentation results

Method	Accuracy	1	2	3
Proposed algorithm	User's accuracy	86	85	99
	Producer's accuracy	97	94	74
	Overall accuracy	88	Kappa coefficient	81
SVFMM algorithm	User's accuracy	96	36	46
	Producer's accuracy	41	60	89
	Overall accuracy	53	Kappa coefficient	29



(a) (b)

(c)

Figure 5 convergence image for the number of class

4. CONCLUSION

This paper proposes an image segmentation method that combining GMM and RJMCMC. In the proposed algorithm, GMM is used to model the pixel spectrum measurement distribution of the image. The number of component is a random variable. In order to decrease the affection of image noise, use Gibbs function to model the prior distribution of GMM weight coefficient. According to Bayes' theorem to build posterior probability. For realizing that automatically determine the number of class, RJMCMC was adopted in proposed algorithm. The segmentation shown that the proposed algorithm not only automatically determine the number of class, but also segment images accurately.

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