		TRUE CLASS	
		Non-Fire	Fire
PREDICTED CLASS	Fire	52	1089

Confusion matrix showing the classification results with the CNN model trained using VGG16 is shown in Table 7.

Table 7. Confusion matrix of VGG16 CNN model

		TRUE CLASS	
		Non-Fire	Fire
PREDICTED CLASS	Non-Fire	1860	40
	Fire	43	1098

Confusion matrix showing the classification results with the CNN model trained using VGG19 is shown in Table 8.

Table 8. Confusion matrix of VGG19 CNN model

misclassified. It is thought that the reason why the flame regions in the images in Figure 6 (a) cannot be detected is that the flame region cannot be detected due to the very small flame region or the color toning. It is thought that the images in Figure 6 (b) are misclassified because they are too complex or their color tones are too similar to flame colors.

4. Conclusions

In this study, it is aimed to detect fire using images containing fire zones. A dataset was created by combining various fire datasets in the literature. The dataset contains 1141 images with fire zones and 1900 images without fire zones. Three methods were used to detect the fire in these images. The first of these methods is made by applying the basic image processing algorithms to the images sequentially. With the image filters applied on the images containing the fire area, it is ensured that the flame area is extracted from the image. These operations are performed by applying reduce brightness, HSI, YCbCr, median, herbaceous filters to the