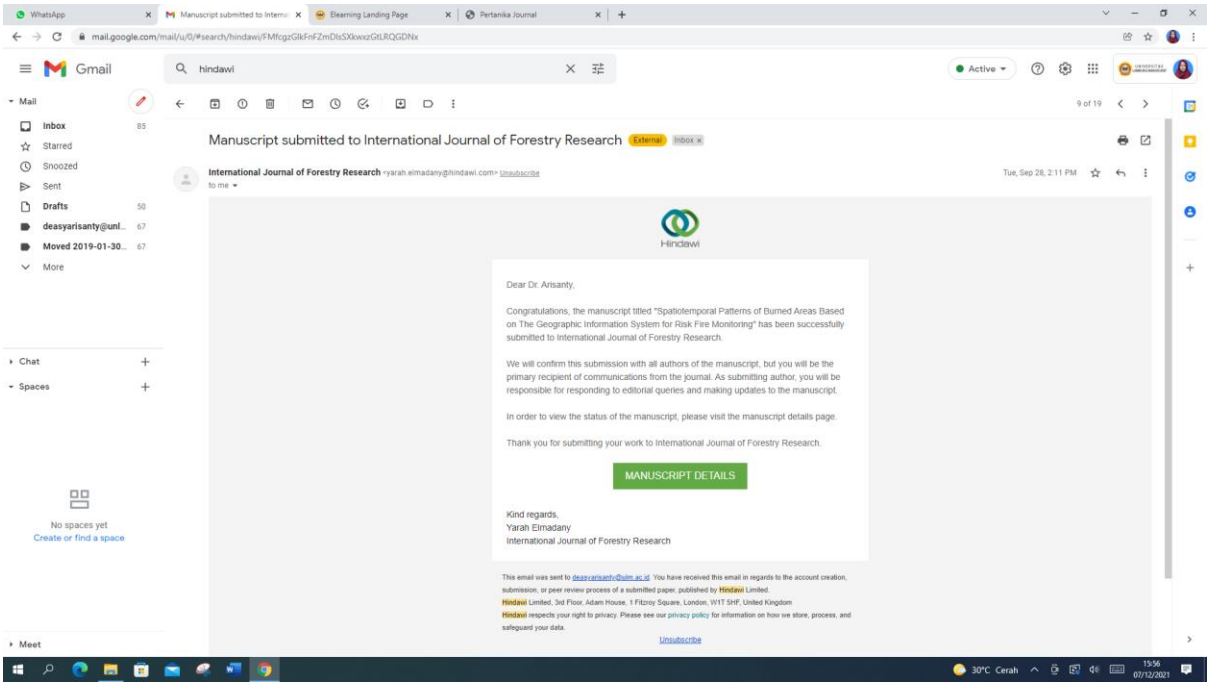
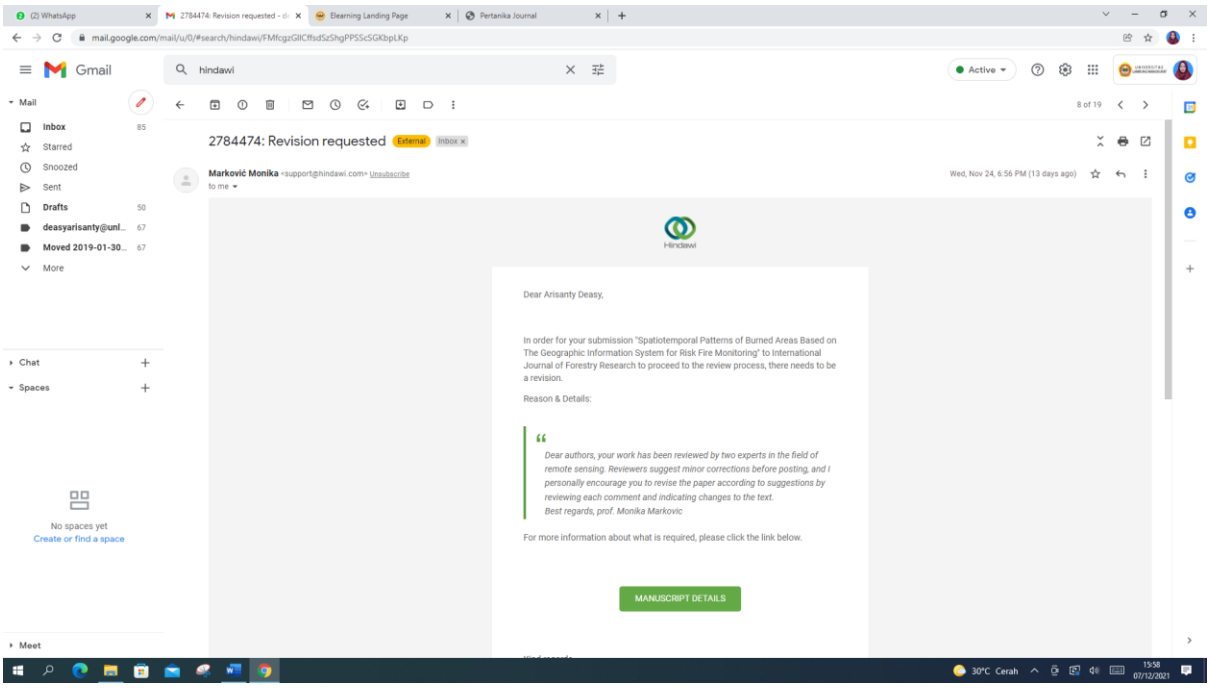
1. Tanggal 28 September 2021 dilakukan submitted artikel melalui sistem



2. Tanggal 24 November 2021 keluar hasil review artikel dengan minor revision, dengan perbaikan sebagai berikut:



Major issues

Authors should highlight what is main novelty in their manuscript (i.e. methodology or in obtained results).

Minor issues

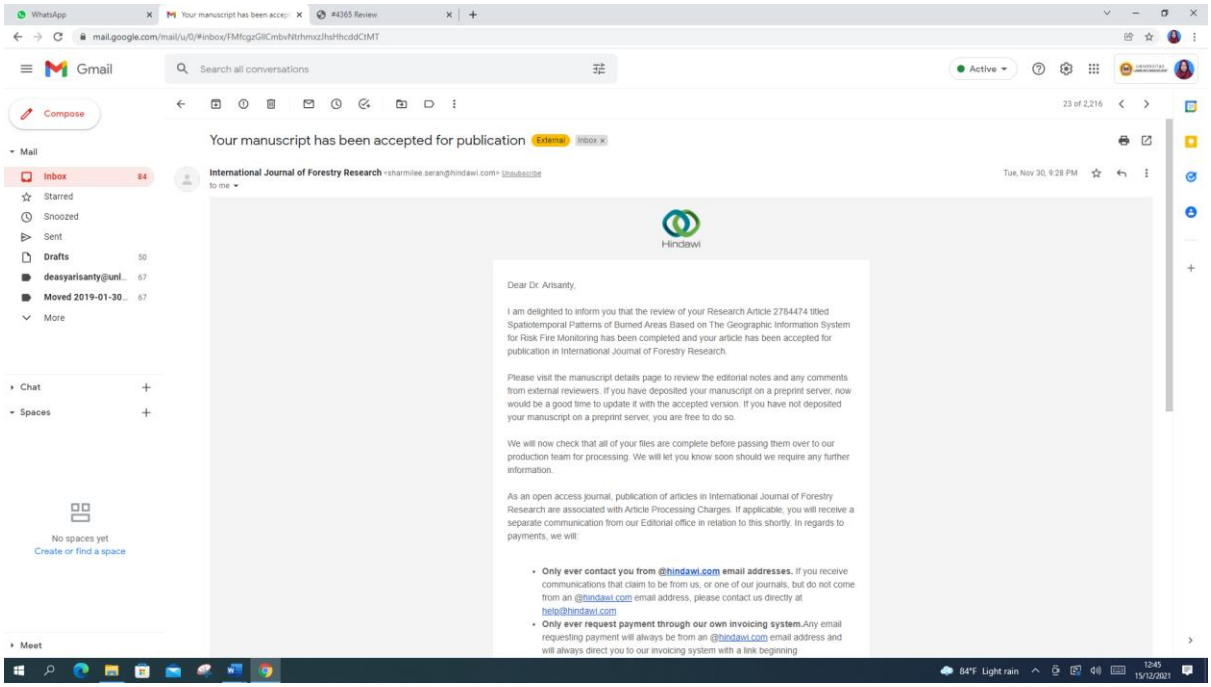
- introduction: some sentences are confusing, an explanation can be added regarding the relationship between paragraphs
- Figure 1 and figure 4 should be in higher resolution.
- Page 7 last paragraph:
  „Other regions belonged to the non-significant category. (Figure 3).” Authors should delete “.” before “(Figure 3).”

- what does each number in the result mean? give a more detailed explanation about it
- add a discussion about the spatial pattern of land fires in the discussion section
- some tables need to be cited in the script.
- Some references can be considered for replacement, see notes on your manuscript

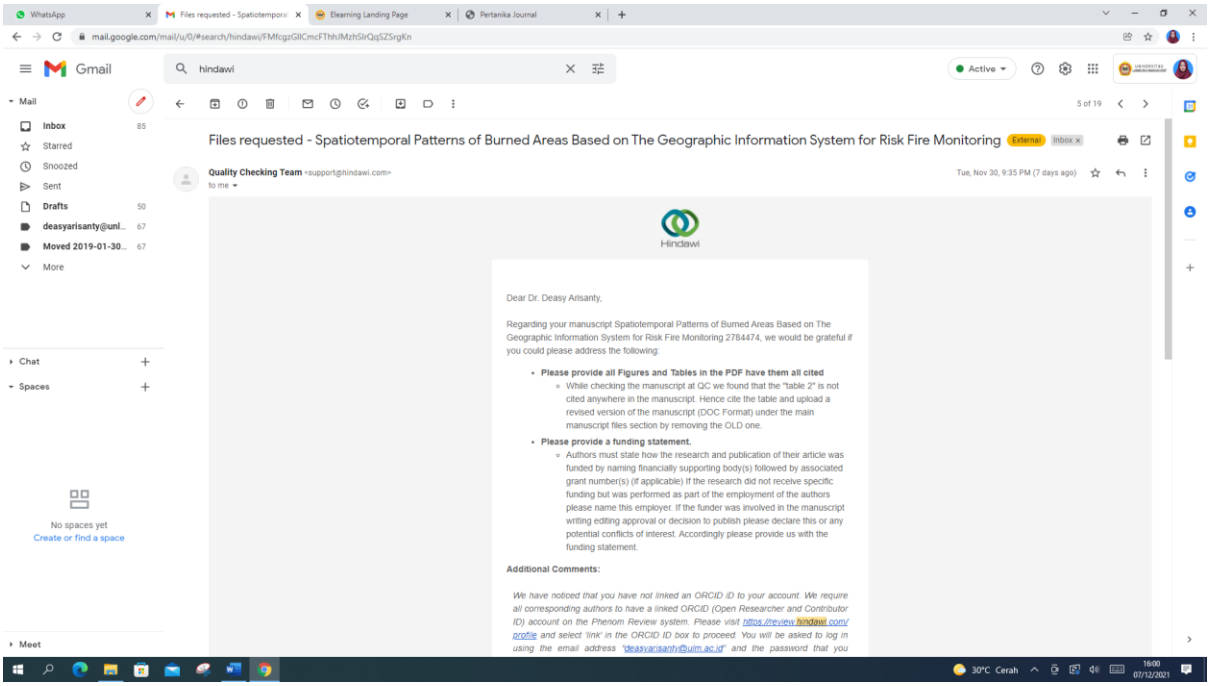
Reviewer 2

1. novelty needs to be clarified again in the introduction
2. Somehow it seems to me that within this part of the introduction the text is not fluid. Perhaps, if possible, to try to create more coherent text, according to the current layout, most sentences seem like separate thoughts.
3. the table goes beyond the paper frame. It is not clear what the given rows (10 rows) of values in the table refer to
4. some figure not clear, need to higher resolution

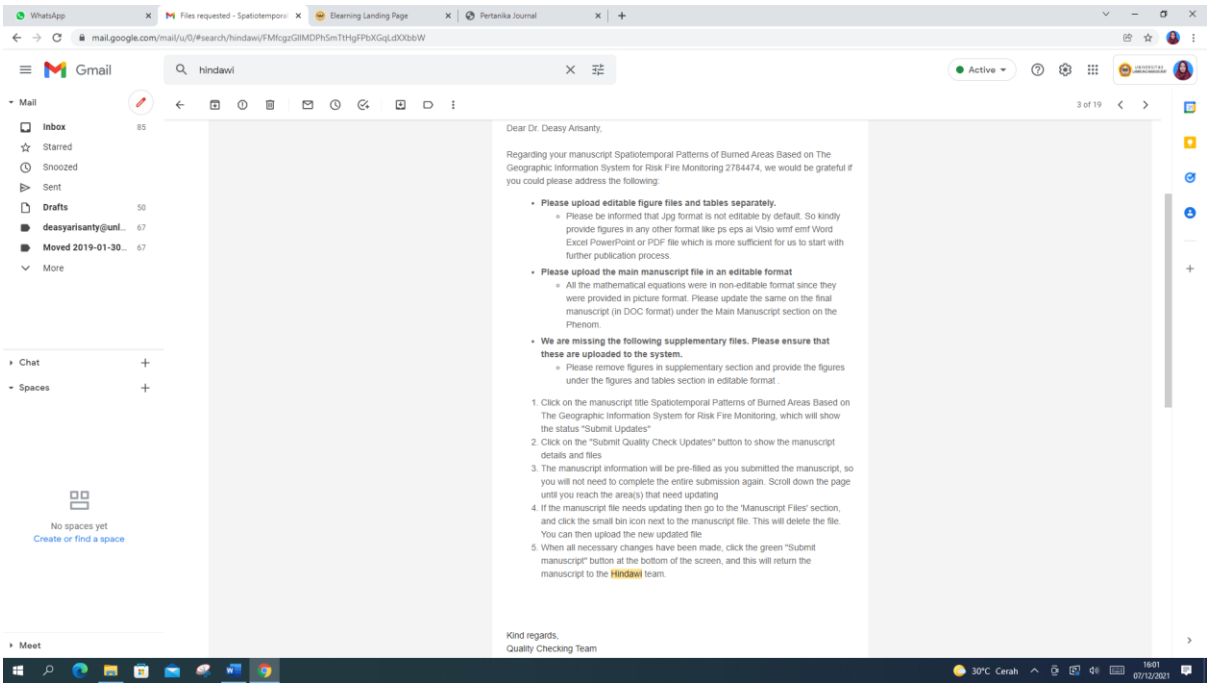
3. Perbaikan disubmit pada tanggal 28 November 2021. Tanggal 30 November keluar accepted.



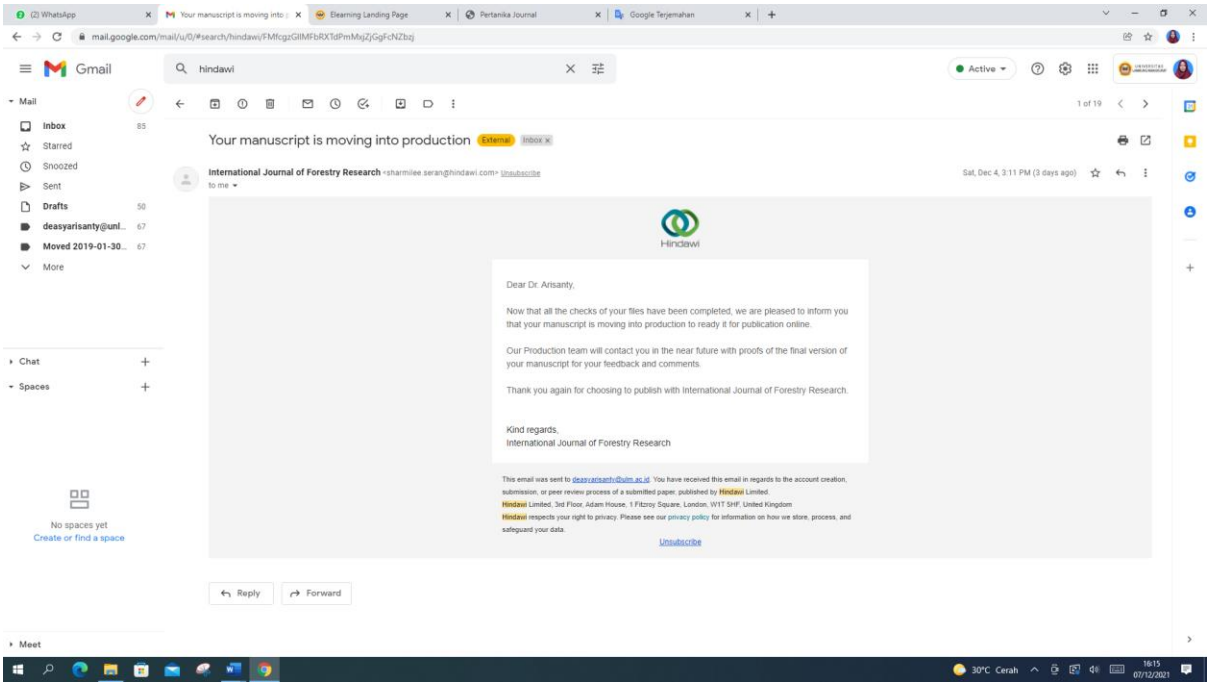
4. Kemudian tanggal 30 November 2021 keluar kembali revisi. Perbaikan adalah penjelasan table dan gambar yang kurang jelas, dan mengenai funding statement serta conflict of interest.



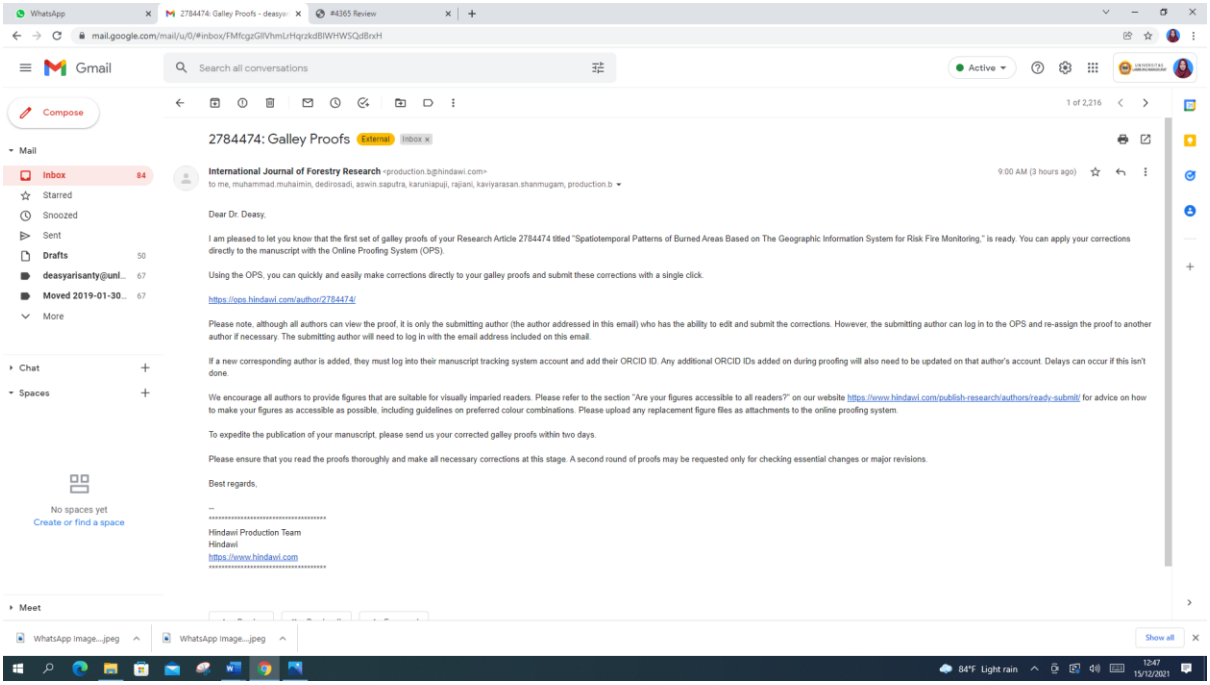
5. Tanggal 1 Desember kembali disubmit perbaikannya, kemudian tanggal 2 Desember keluar lagi perbaikannya. Perbaikannya adalah equation diminta untuk dituliskan kembali dengan menggunakan tipe data doc dan gambar diminta diganti menjadi tipe eps. Pada tanggal 3 Desember kembali dikirimkan kembali.



6. Artikel complete perbaikannya pada tanggal 4 Desember 2021 dan siap dipublikasikan



7. Tanggal 15 Desember 2021 keluar galley proof perbaikan terakhir lewat sistem



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Research Article

Spatiotemporal Patterns of Burned Areas Based on the Geographic Information System for Fire Risk Monitoring

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Abstract

Forest and land fires occur every year in Indonesia. Efforts to handle forest and land fires have not be optimal because fires occur in too many places with unclear patterns and densities. The study analyz the spatiotemporal patterns of burned areas and fire density in fire-prone areas in Indonesia. Data burned areas were taken from http://sipongi.menlhk.go.id/. The website collected its data from NOA (National Oceanic and Atmospheric Administration) images. Data were analyzed using the hot sp analysis to determine the spatiotemporal patterns of the burned areas and the kernel density analysis examine the density of land fires. Findings showed that the spatiotemporal pattern from 2016 to 20 formed a hot spot value in the peatland area with a confidence level of 90–99%, meaning that land fir were clustered in that area. In addition, the highest density of land fires also occurred in the peatla areas. Clustered burned areas with high fire density were found in areas with low–medium vegetatic density—they were the peatland areas. The peatland areas must become the priority to prevent a handle forest and land fires to reduce fire risks.

1. Introduction

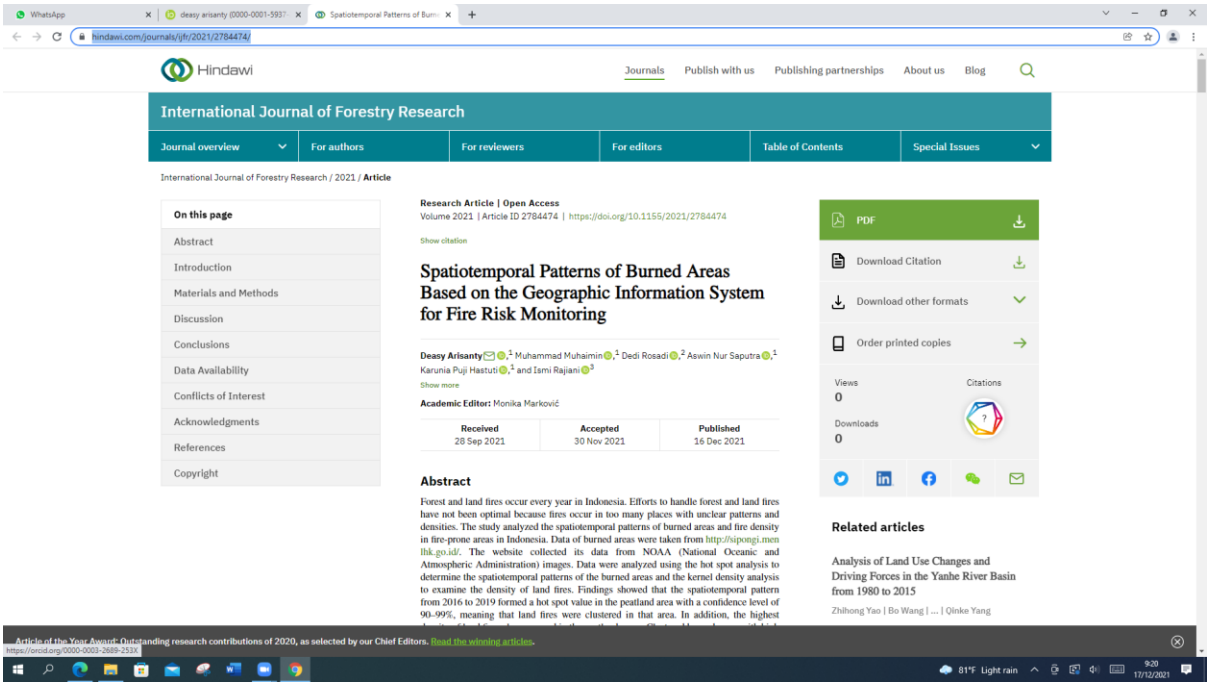
Forest and land fires are recurring events in Indonesia and are the main contributors to climate chan [1–3]. Various methods have been carried out to overcome forest and land fires, yet they do not sho satisfying results [4]. The traditional method to monitor fires employing the community is still practic in Indonesia, including in South Kalimantan [5, 6]. This method, however, has made fire manageme less effective and dangerous. Electronic and computer technology has enabled the development methods for handling forest and land fires through computer-based geospatial systems [6].

Geospatial technology is the most appropriate and easier method in analyzing geographical phenomen including monitoring land fires [7]. As fires often occur in spatially vast and dangerous areas, the use geospatial technology is considered the most appropriate choice to handle such fires [8]. Geospati technology allows analyzing forest and land fires at various spatial and temporal scales [9]. Geospati analysis can also prevent future fires and help conserve forest and land resources [10]. A geograph information system (GIS) enables efficient analysis of geographic phenomena, including spatial patte analysis or spatial relationship modeling [9, 11–14].

Spatial autocorrelation analysis is an analysis in GIS. Spatiotemporal autocorrelation refers to t correlation of events within themselves over space and through time. It reflects the extent to whi events with similar properties are clustered or dispersed [15, 16]. Spatial autocorrelation analysis aims analyze whether the variables are spatially correlated and how relevant they are and how they genera hot spots [17, 18]. Hot spot analysis, an autocorrelation analysis, refers to calculating the Getis–Ord G statistic for each element in the dataset. The Getis–Ord G_i^* value can be used to detect the spati distribution of clustering high-value or low-value spatial units [19]. The Getis–Ord G_i^* value based the normal distribution hypothesis test is more sensitive than the LISA (Local Indicators of Spati Association) method based on the random distribution hypothesis test [20].

In addition to using Getis–Ord G_i^*, spatial-temporal analysis can use kernel density analysis. Kern density in the geographic information system is a method to determine whether or not an occurri

8. Tanggal 16 Desember 2021, artikel telah online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