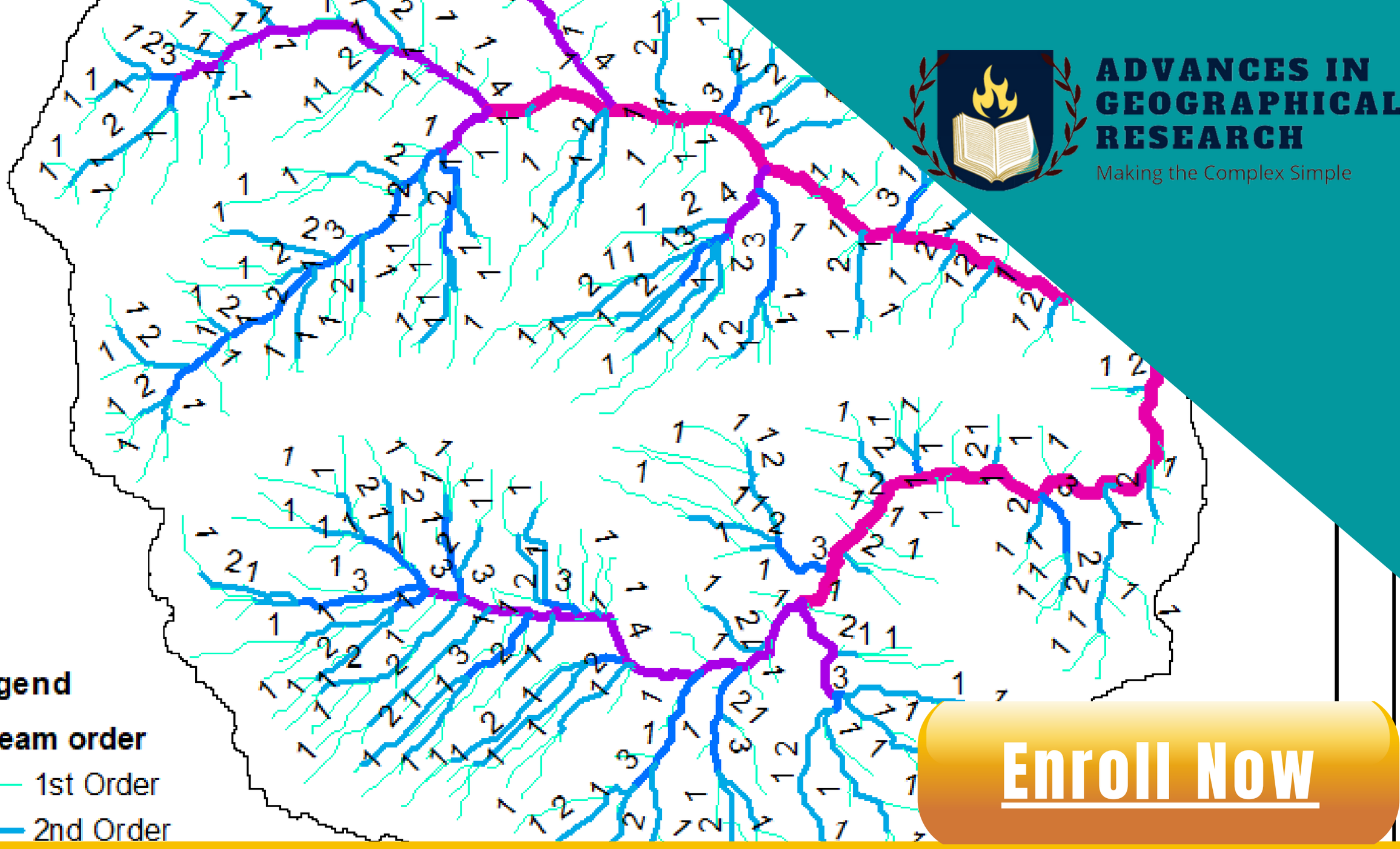




eWorkshop with Live Practice
On

# HYDRO-MORPHOMETRIC CHARACTERISTICS OF THE DRAINAGE BASIN IN ARCGIS

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# About Workshop

In this online workshop and live practice, you can learn the complete process (A-Z) of morphometric analysis from scratch to production. How to download freely available data, and process data in ArcGIS environment. Moreover, you will also learn how to prepare final maps and tables for publication.

The analysis of morphometric parameters gives a precise scenario of the geomorphic characteristics and the hydrological behaviour of a drainage basin, especially in the areas where hydrological data are unavailable due to the absence of a gauging station or inaccessibility to harsh topographic conditions. So, this live workshop is aimed to investigate the hydro-geomorphic characteristics of a mountainous basin. The extraction and analysis of the morphometric variables will be done using remote sensing and GIS. The morphometry of a drainage basin is a quantitative approach for evaluating the different aspects of the drainage system, viz. number, and length of the stream, drainage density, bifurcation ratio, slope, shape, relief of the basin.

Linear properties of drainage basin viz Stream order (μ), the number of streams (Nμ), total stream length (Lμ), mean steam length (L̄μ), stream length ratio (Rl), bifurcation ratio (Rb) and hydrological storage coefficient (Rho) will be considered for analyzing the linear characteristics of the basin.

Basin area (A), basin perimeter (P), form factor (F), circularity ratio (Rc), Lemiscate's K, elongation ratio (Re), infiltration number (If), compactness coefficient (Cc), length of overland flow (Lg), Constant of channel maintenance, (CCM), drainage density (DD), lineament density (LD), stream frequency (Fs) and texture ratio (Tu) are the selected parameters of areal aspects analysis of the basin.

The relief aspects which consider the nature of the hydro-geomorphic behaviour of the basin incorporate total basin relief (H), relief ratio (Rh), dissection index (DI), ruggedness number (Rn), Melton ruggedness number (MRn), aspect, and average slope (Tan Ɵ) and hypsometric integral (HI) will be covered in this live workshop.

After completing this course, you will be efficiently able to prepare research articles.

**Enroll Now**

**Keywords:**

- Hydro-geomorphology
- DEM
- Morphometric analysis
- Remote sensing
- GIS
- Visualization
- Mapping
- ArcGIS

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## WHAT YOU WILL LEARN

- Step-by-step procedure from data download, handling, selection, produce maps
- Comprehensive understanding of morphometric analysis of the drainage basin
- Instructors continuous support, taking your hand step-by-step to develop high-quality maps using real data

## BENEFITS FOR YOU

- During this workshop, participants can prepare one article related to hydro-morphometric characteristics of a drainage basin
- Live WhatsApp Chatting
- e-Certificate will be provided
- Publication support from SCOPUS Index Journal
- 1:1 sessions with expert
- Provide supporting resources like ppt, code, research articles
- Access recorded class videos any times
- Easy Payment Gateway such as Debit card, credit card, UPI etc. (international payment also acceptable)

## COURSE CONTENT

**Section 1: Introduction**

1. Introduction to hydro-morphologic characteristics of the drainage basin
2. Literature Review
3. Understanding of morphometric analysis
4. Free data sources for the whole world
5. Selection of relevant Criteria

**Section 2: Selection of study Area**

1. How to select the study area
2. How to prepare a location map of the study area
3. How to prepare a methodological flow diagram

**Section 3: Linear aspects**

1. Number of streams of order μ
2. Total number of steams within the basin
3. Bifurcation ratio (Rb)
4. Total stream length of order μ
5. Mean stream length of the order
6. Stream length ratio (RL)

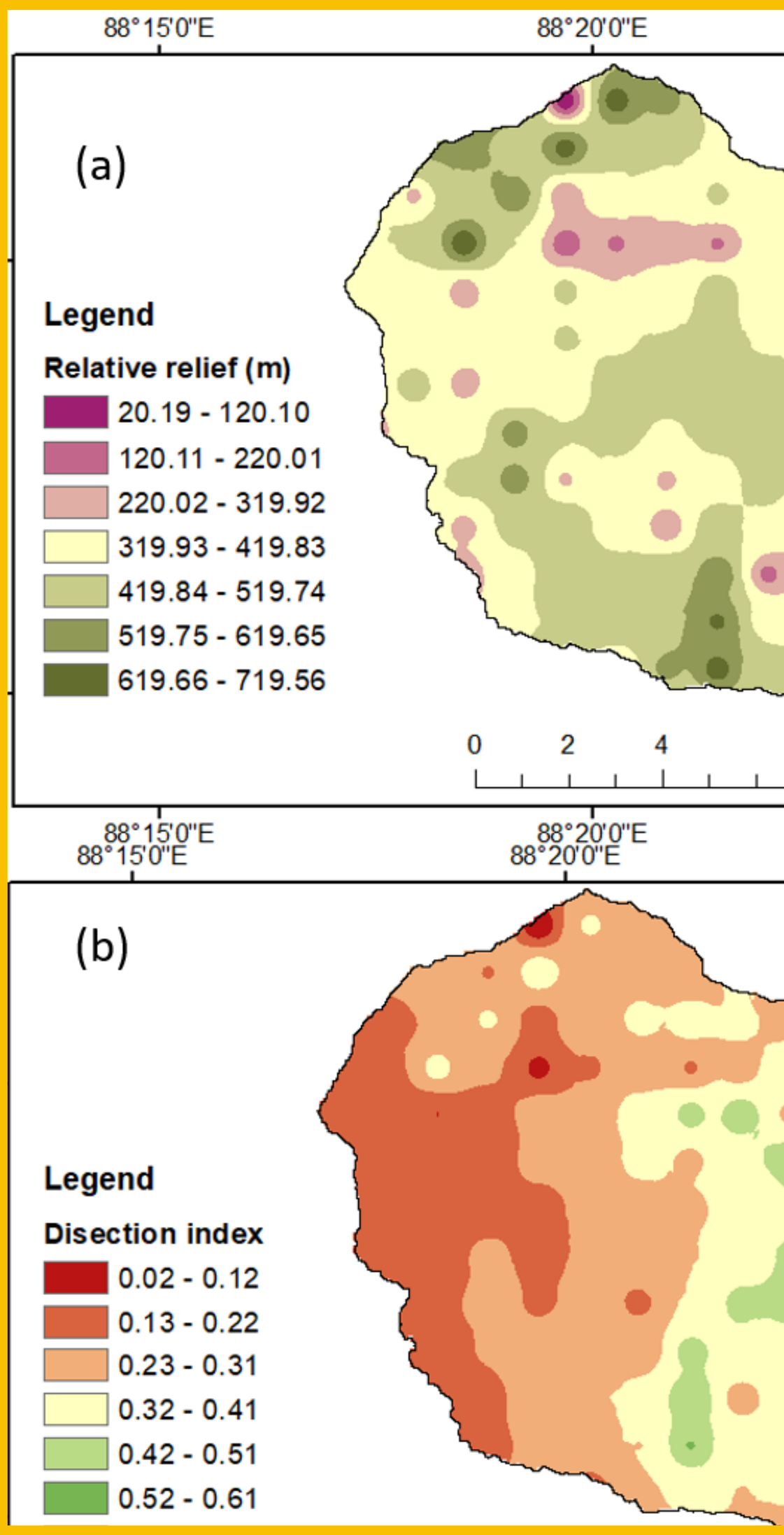
**Section 4: Areal aspects**

1. Area of the of order (Aμ)
2. Length of the basin of order Lbμ
3. Width of the basin of order μ
4. Basin perimeter of order
5. Relative perimeter (Pr)
6. Length area relation (Lar)
7. Lemniscate's (k)
8. Basin form factor
9. Basin circulatory ratio (Rc)
10. Compactness Coefficient (Cc)
11. Basin elongation ratio (Re)
12. Drainage density (Dd)
13. Stream frequency (Fs)
14. Infiltration Number (If)
15. Length of overland flow (Lg)
16. Constant channel maintenance
17. Texture ratio (Tμ)

**Section 5: Relief aspects**

1. Height of highest point on the watershed (Z)
2. Height on basin mouth (z)

3. Total basin relief (H)
4. Relative Relief (Rr)
5. Relief ratio (Rh)
6. Dissection Index (DI)
7. Ruggedness number (Rn)
8. Average slope (Tan Ɵ)
9. Melton Ruggedness Number (MRn)




**Section 6: Topographic Indices**

1. Topographic Wetness Index
2. Topographic Position Index
3. Export maps

**Section 7: Final preparation for publication**

1. Preparation of Tables
2. Preparation of Figures
3. Preparation of final layout

**WHO THIS COURSE IS FOR:**

1. Students, researchers and professionals in Natural hazards, Environmental Science, Ecology, Engineer and Geography
2. Students, researchers and professionals who are interested in multicriteria decision-making analysis using GIS Data
3. Anyone interested in learning advanced GIS techniques Using Step by Step Approach

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## ARE THERE ANY COURSE REQUIREMENTS OR PREREQUISITES?

1. Basic Knowledge of Microsoft Excel
2. No statistical background is needed
3. Basics knowledge in ArcGIS software and QGIS is optional
4. Interest in RS-GIS techniques using real-life Data

## REGISTRATION

Enroll Now

Registration is compulsory for all the participants using website
Registration Fee Structure

**Standard Registration fee**

**India:** 6500 INR  Other countries: 90 USD

**Early-bird Registration fee**

**India:** 3999 INR  Other countries: 60 USD

## IMPORTANT DATES

| | |
|---|---|
| Early Bird Registration | Closes 31st August, 2022 |
| Standard Registration | Within 8th September, 2022 |
| Workshop start | 9th September, 2022 |
| Workshop End | 1st  October, 2022 |
| Time | 6- 8 pm (+5:30 GMT) |
| Date | 3 days a Week |

# ABOUT US

Advances in Geographical Research (AIGR) provides certified professional training, development opportunities and assured innovative research ideas for the next generation of researchers, such as programs and courses in research methodology, Remote sensing, Geo-Informatics and GIS courses, as well as mentoring.

Our motto is making the complex simple. Led by some of the world's leading researchers, who provide key insights from their experience, our training programs support career development and encourage our researchers to excel in their field.

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