

Accepted Manuscript

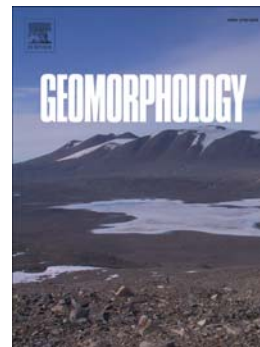
Lithofacies and particle-size characteristics of late Quaternary floodplain deposits along the middle reaches of the Ganga river, central Ganga plain, India

S. Kanhaiya, B.P. Singh, Maya Tripathi, Sagrika Sahu, Veena Tiwari

PII: S0169-555X(16)30771-1
DOI: doi: [10.1016/j.geomorph.2016.08.030](https://doi.org/10.1016/j.geomorph.2016.08.030)
Reference: GEOMOR 5744

To appear in: *Geomorphology*

Received date: 12 March 2016
Revised date: 12 August 2016
Accepted date: 25 August 2016



Please cite this article as: Kanhaiya, S., Singh, B.P., Tripathi, Maya, Sahu, Sagrika, Tiwari, Veena, Lithofacies and particle-size characteristics of late Quaternary floodplain deposits along the middle reaches of the Ganga river, central Ganga plain, India, *Geomorphology* (2016), doi: [10.1016/j.geomorph.2016.08.030](https://doi.org/10.1016/j.geomorph.2016.08.030)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Lithofacies and particle-size characteristics of late Quaternary floodplain deposits along the middle reaches of the Ganga river, central Ganga plain, India

S. Kanhaiya, B. P. Singh*, Maya Tripathi, Sagrika Sahu and Veena Tiwari

Centre of Advanced Study in Geology, Banaras Hindu University, Varanasi, India-221005

*Email corresponding author: drbpsingh1960@gmail.com

Abstract

Floodplains are flat areas lining both sides of most rivers. They are commonly inundated during high flood events and are important sites of biodiversity and human occupation and cultivation. Big city centers such as Kanpur, Allahabad, Mirzapur and Varanasi are situated on the bank of the Ganga river in central Ganga plain, India. Cluffed embankments occur on the left side of the Ganga river around the village of Jhusi, Allahabad district and Adalpura, Mirzapur district, and on the right side around the town of Jajmau, Kanpur district, around the village of Sirsa, Allahabad district, around the town of Ramnagar, Varanasi district and the village of Tanda, Chandauli district. These cliff sections were studied to determine facies types and grain-size variations along and across the cliff sections in order to elucidate the mechanism of particle transportation and sedimentation on the floodplains. It was found that the majority of the facies are composed of extremely silty and very silty slightly sandy mud, and extremely silty and very silty sandy mud, a few consisting of slightly clayey silt. Both groundwater horizons and intercalated pedogenic calcretes in the muddy facies suggest pedogenesis under arid to semiarid climatic conditions during their development. Grain-size analyses show that mean particle size ranges from 4.23–6.53 phi (coarse to fine silt). Sorting (standard deviation) shows a range of 1.57–2.94 phi, indicating that all the samples are poorly to very poorly sorted. Skewness ranges from 0.09–0.88 (near-symmetrical to very fine skewed). Kurtosis varies from 0.75–1.54, with a few exceptions indicating mesokurtic to very leptokurtic size distributions. Plots of mean grain size vs. sorting suggest that sedimentation took place in a quiet fluvial environment in the course of numerous discharge episodes. Channel and floodplain deposits of the Ganga river are clearly distinguished in these plots. Furthermore, a plot of the coarsest percentile against the median diameter (C-M diagram) suggests that the sediments were transported in graded to uniform suspension.

Keywords: Floodplain; Ganga river; Grain-size; Lithofacies; Textural parameters; India.

Download English Version:

<https://daneshyari.com/en/article/5781108>

Download Persian Version:

<https://daneshyari.com/article/5781108>

[Daneshyari.com](https://daneshyari.com)