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supra tidal salt flat surface is also shown to indicate the height of the scarp. Vertical scale is highly exaggerated. The elevation data is based on the Survey of India topographical maps (survey years-1960-66).

**Figure 3.9**

a - View of the Allahbund scarp. Note the degraded nature of the scarp.
b - View of the crest part of the Allahbund scarp. A short stream incising through the crest and merging with the supra tidal salt flat in the distant background can be seen.
c - View of the gullied surface over the Allahbund scarp. Note the depth of incision in the gully. The surface here is free of aeolian sediments.

**Figure 3.10**

Topographic cross sections drawn across the E-W trending Allahbund scarp. The top profile is from the western extremity while the bottom one is from the eastern extremity of the scarp. The elevation data is based on the SOI topographical maps (survey years-1960-66).

**Figure 3.11**

a – Photomosaic of the northern escarpment of the Bela island. In the foreground is the rann surface.
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**Figure 3.12**

E-W topographic profiles drawn over the crest of the northern escarpments of (a) Bela, (b) Khadir and (c) Bhanjada islands.

**Figure 3.13**

a - Distant view of the western margin of the Khadir island.
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**Figure 3.14**

a - View of a sea cave at the northern margin of Bela island (Loc. North of Kuda).
b - Close view of the lower notch in Bela island (Loc. North of Kuda).

**Figure 4.1**

Geomorphic map of the Bet Zone of Great Rann of Kachchh with spatial distribution of sampling stations along two transects. Transect-1 is ESE-WNW oriented transect along the southern margin of Bet Zone. Transect-2 is roughly N-S oriented transect running across the eastern margin of the Bet Zone.

**Figure 4.2**

Topographic profiles along the two transects. a) Transect-1 and b) Transect-2. The profiles drawn are based on the elevation variations data from the Survey of India topographic maps. Note the elevation variations i.e. microgeomorphic variations of the respective sampling sites as shown in figure.

**Figure 4.3**

Grain Size distribution at the sampling stations along two transects a) Transect-1 and b) Transect-2. Note that the sand proportions increases at the stations directly in contact with the inundating waters whereas the silty to clayey sediments belongs to the sheltered areas (low lying areas, depressions).

**Figure 4.4**

SEM photographs of the recovered foraminiferal assemblage.

3. Ammonia parkinsoniana (d’Orbigny, 1839); 3a. Spiral view; 3b. Umbilical view.
5. Elphidium discoideum (d’Orbigny) 5a. Spiral view; 5b. Umbilical view.
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**Figure 4.5**

Graph showing spatial distribution of Ammonia genus along the two
Figure 4.6 Graphs showing spatial distribution of foraminifera along the two transects.

Figure 5.1 

a. Map of Kachchh basin showing the fault-controlled geomorphic set-up. Note the vast extent of the Great Rann forming the northern part of the basin. Unshaded areas are occupied by Mesozoic and Tertiary rocks. Boxed area shows the rocky islands of Pachcham and Khadir within the Great Rann. (Inset) Location map. 
b. Satellite image of the northwestern part of Khadir and Bhanjada islands showing the location of the sections studied (source: www.googleearth.com). 
c. Satellite image of the northwestern part of Pachcham and Kuar Bet island showing the location of the sections studied (source: www.googleearth.com).

Figure 5.2 

a. View of the northwestern margin of the Khadir island. The foreground is the salt-encrusted rann surface and vertical cliff section of the raised rann sediments at the base of the island. 
b. View of the southern cliff face of raised rann sediments rising above the rann surface at eastern fringe of the Bhanjada island. Part of the rocky island is visible to the left. 
c. View of the raised rann sediments at southern margin of the Kuar Bet island. Rann surface is seen in the background.

Figure 5.3 Lithologs of the raised rann sediments in Khadir, Bhanjada and Kuar Bet islands in the Great Rann. Note the dominantly fine-grained lithology and the similarity in gross lithology in all the three islands. OSL dates obtained are also shown.

Figure 5.4 

a. Photomicrograph of the sediments showing discoidal and nodular gypsum crystals. 
b. Photomicrograph showing discoidal gypsum forming large agglutinates in the sediments.

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Figure 6.2 Photographs of the split core pipes of Berada core raised from Banni plain of Great Rann basin. Note the excellent recovery of the sediments.

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Figure 7.3 Graphs showing down core variations of foraminiferal species in Dhordo core

Figure 7.4 Graphs showing down core variations of foraminiferal species in Dhordo core

Figure 7.5 Graphs showing down core variations of foraminiferal species in Dhordo core

Figure 7.6 Graphs showing down core variations of foraminiferal species in Berada core

Figure 7.7 Graphs showing down core variations of foraminiferal species in Berada core.

Figure 8.1 Down core variations in Al and other ‘Al normalized’ major elements from Dhordo core.

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Figure 9.1 a) Down core variations in major Clay minerals (Smectite, Illite, Kaolinite and Chlorite), Illite Crystallinity, Illite Chemistry and (Sm+Ka)/(IIl+Ch) ratio. b) Downcore variations in environmentally sensitive clay mineral ratio proxies in Dhordo Core. The divisible zones and the overall timeframe of deposition also indicated.

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Figure 9.3. Clay mineral characteristics of Indus river system from its flood plains, river mouth (delta) and shelf region compared with Great Rann basin, Kachchh. a) The Eastern Punjab (Pakistan) flood plains near Behwalpur region comprising Marot, Tilwalla cores and Fort Abbas and Derawar trenches in flood plains covering from ~49Ka to recent (Alizai et.al. 2012). b) The clay mineralogy of from the present day confluence of the eastern and western tributaries of Indus river that represents the older river sediments essentially of Himalayan origin but not necessarily of
river Nara (Alizai et al. 2012), Keti Bander core is from the Indus delta region near to the river mouth (Alizai et al. 2012) and Indus-23, Indus-10 core records are from north of Indus canyon and off Karachi (Pakistan) respectively (Limmer et al. 2012). C) Clay mineral data of rann sediments near Shakti bet (Tyagi et al. 2012) western great rann and present study i.e. Central and Marginal Great Rann of Kachchh basin.

Figure 9.4 Plots showing Illite crystallinity Vs Chemical weathering proxies for the individual time frames for Dhordo Core samples. (a) Smectite/(Illite+Chlorite) Vs Illite crystallinity, and (b) Kaolinite/(Illite+Chlorite) Vs Illite crystallinity. Note that the L. Pleistocene values are more sparsely arranged, L. Pleistocene to E. Holocene values shows lowered degree of Illite crystallinity with increased hydrolization processes; whereas; Mid-Late Holocene values are more or less indicating higher leaching and variable degree Illite crystallinity.

Figure 9.5 Plots showing Illite crystallinity Vs Chemical weathering proxies for the individual time frames for Dhordo Core samples. (a) Smectite/(Illite+Chlorite) Vs Illite crystallinity, and (b) Kaolinite/(Illite+Chlorite) Vs Illite crystallinity. Note that the E. Holocene values shows lowered degree of Illite crystallinity with increased hydrolization processes; Early-Mid Holocene values are more sparse and shows evidences of high-lower degree of hydrolization processes; whereas; Mid-Late Holocene values essentially shows higher order of leaching processes.

Figure 10.1 Map of Kachchh and adjoining regions showing multiple sediment sources.

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Figure 10.4 Scatter plot showing the Sr-Nd isotopic composition of the Rann sediments from Dhordo and Berada cores with various potential end members. Note that the Thar Desert values are from 1.8-9.1ka B.P. old sediments; Ghaggar River 3.4ka B.P.; 0 to 28ka B.P. and Gularchy 3-11ka B.P.

Figure 10.5 Temporal scale variations in $\varepsilon\text{Nd}$ values of Keti Bunder (Indus delta), Dhordo core (central rann basin) and Berada Core (marginal rann basin). Note that the Indus delta at its bottom to top varies with high to low radiogenic Nd (with stable values during most of the Holocene) whereas the rann samples as both locations shows opposite trend i.e. low radiogenic Nd at the bottom that changes into high radiogenic Nd upwards.

Figure 10.6 Temporal variations in $^{87}\text{Sr}/^{86}\text{Sr}$ and $\varepsilon\text{Nd}$ in Dhordo core.

Figure 10.7 Temporal variations in $^{87}\text{Sr}/^{86}\text{Sr}$ and $\varepsilon\text{Nd}$ in Berada core.