

We would like to thank you for the positive and constructive feedback, which help improving the quality of the paper. You have pointed out issues that required further improvements or explanations. Below we addressed each specific issue and the manuscript has been updated accordingly.

-section 4.1: better to show the pictures of the core sediment

Thanks for this suggestion. The core lithology and a picture of the core sediment have been added to Figure 5.

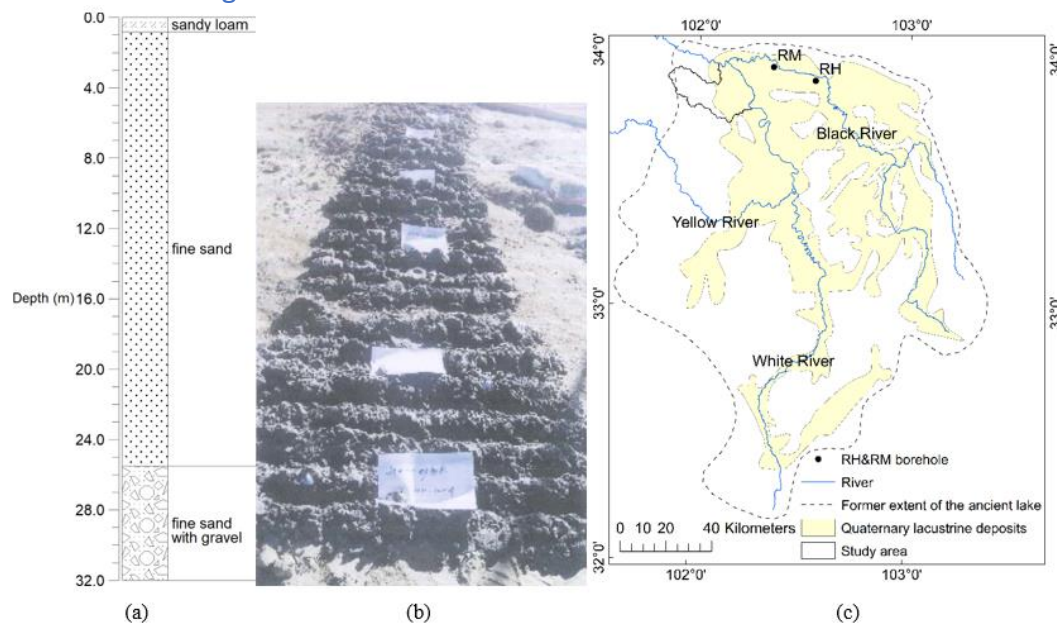


Figure 5. Borehole information: (a) The core lithology of borehole ITC_Maqu_1; (b) A picture of the core sediment when the borehole was drilled; (c) Location of boreholes RM and RH (after Chen et al. (1999)).

-section 4.2: please discuss the potential reason for the different accuracy of the seven datasets.

Thanks a lot for this comment. The potential reasons for the different accuracy of the seven datasets have been discussed and added in section 4.2:

The DEMs' quality can be influenced by several factors, such as sensor type, algorithm, terrain type, and grid spacing. (Hebeler and Purves, 2009). In this study, grid spacings of DEMs are similar except for ALOS RT1, so the main factors that affect the accuracy of the DEMs should be sensor types and algorithms. For SRTM, the issue inherent to the production method is mast oscillations, while for ASTER and AW3D30, the issue is scene mismatch (Grohmann, 2018). As for radiometrically terrain corrected (RTC) products ALOS RT1 and ALOS RT2, the quality is directly related to the quality of the source DEM SRTM which was used in the RTC process. This results in very similar correlation coefficients of SRTM, ALOS RT1, and ALOS RT2, and obvious improvements in RMSE, MAE, and ME (Table 4).

-section 4.3: are there any data, table or figure showing that the soil thicknesses increase from the mountain top to the slope bottom?

Many thanks for pointing out this mistake. The sentence was deleted because the soil thickness is more related to slopes, rather than mountain top or bottom.

-Table 5: better to include elevation information also

Thanks for this suggestion, the elevation information has been added to Table 5.

Table 5. Soil thickness measurements, locations of each measurement can be found in Figure 3.

No	Depth (cm)	Slope (°)	Elevation* (m)	No	Depth (cm)	Slope (°)	Elevation* (m)	No	Depth (cm)	Slope (°)	Elevation* (m)
1	39	9	3762	27	71	10	3509	53	102	6	3457
2	45	20	3769	28	90	11	3503	54	102	14	3459
3	28	25	3777	29	>120	5	3493	55	104	6	3460
4	48	16	3784	30	110	5	3488	56	100	13	3462
5	50	22	3783	31	>120	5	3482	57	92	10	3469
6	46	14	3775	32	>107	2	3473	60	40	9	3491
7	39	25	3770	33	>110	4	3479	61	53	6	3480
8	34	41	3757	34	59	13	3488	62	61	15	3478
9	37	22	3750	35	85	13	3491	63	70	7	3476
10	42	19.5	3734	36	60	20	3502	64	63	14	3468
11	23	20	3732	37	92	13	3517	65	61	9	3467
12	52	0	3461	38	38	10	3452	66	87	10	3458
13	42	3	3462	39	41	20	3461	67	60	5	3496
14	35	3	3463	40	76	30	3472	68	63	7	3487
15	38	4	3470	41	55	30	3483	69	68	15	3474
16	50	9	3474	42	32	40	3501	70	87	18	3554
17	40	10	3482	43	80	35	3519	71	30	14	3562
18	38	10	3489	44	27	30	3530	72	85	20	3572
19	42	15	3502	45	49	30	3522	73	41	17	3587
20	37	8	3494	46	52	30	3514	74	83	13	3596
21	40	10	3488	47	43	20	3500	75	67	27	3612
22	30	5	3475	48	44	22	3484	76	63	20	3605
23	30	4	3472	49	30	25	3475	77	>110	20	3593
24	35	4	3469	50	74	14	3470	78	>110	10	3574
25	28	1	3463	51	37	12	3464	79	42	15	3564
26	29	0	3459	52	81	6	3447				

*Elevations were extracted from ALOS PALSAR RT1.

-section 4.4.2: the equations should be described in section 3.

Thanks for this comment. The equations have been moved to section 3.4.2 Aquifer tests part.

Technical corrections-Line 148: change "the data was" to "the data were"

Thanks a lot. Corrected.

-Figure 9: should "2019 water table depth (m)" be "hydraulic conductivity (m/d)"?

It is 2019 water table depth (m). I put it in Figure 9 because those hydraulic conductivity values were obtained in 2019. Now it is removed to avoid confusion.

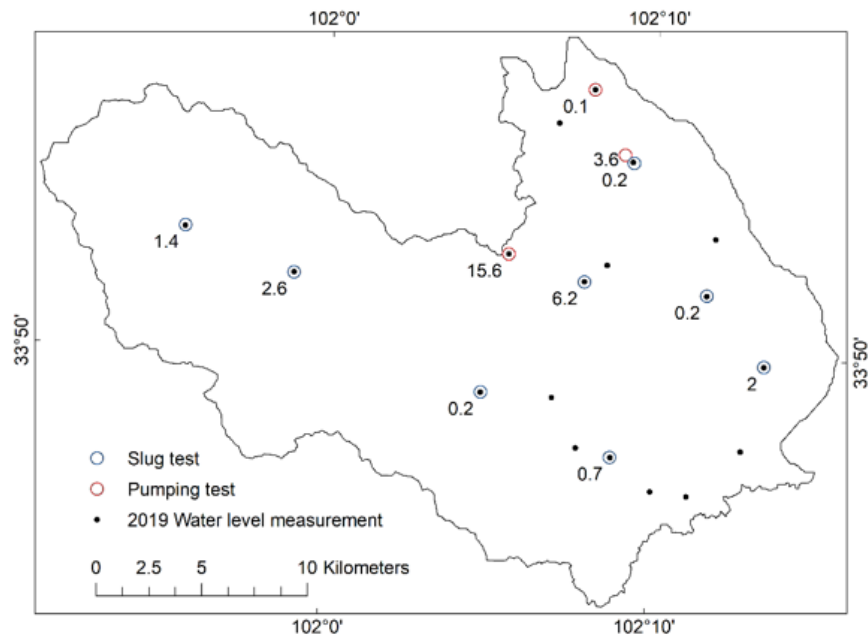


Figure 9. Hydraulic conductivity (m.d⁻¹) obtained from aquifer tests, east of Maqu catchment.