

Supplementary Materials: Mapping Dynamic Turbidity Maximum Zone of the Yellow River Estuary from 38 Years of Landsat Imagery

Maoxiang Chang ^{1,2}, Peng Li ^{1,2,3,4*}, Yue Sun ⁵, Houjie Wang ^{1,2} and Zhenhong Li ⁶

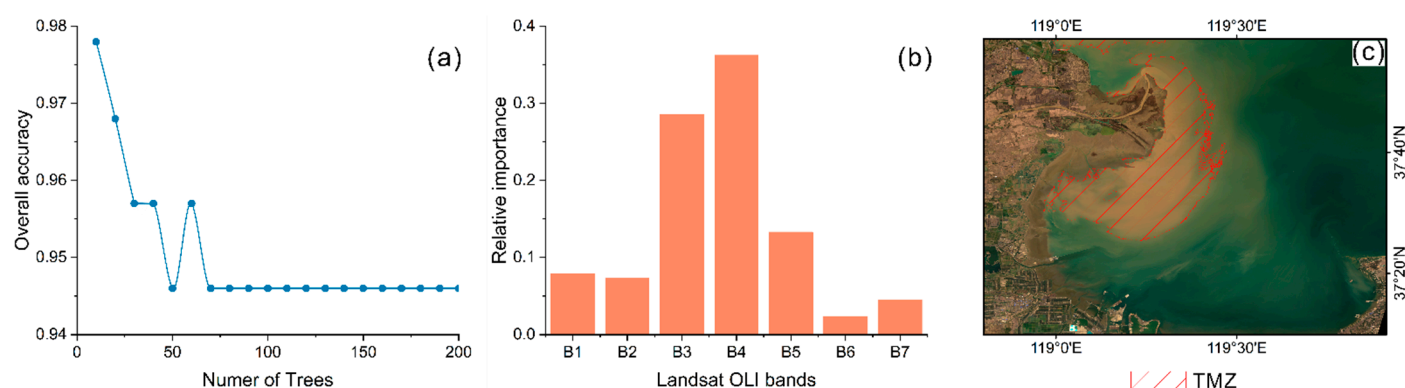


Figure S1. Results of the random forest (RF) classifier. (a) The overall accuracy changing with the number of classification trees; (b) the relative importance of Landsat OLI bands in the RF classification; (c) the derived TMZ extent using RF classifier. The Landsat OLI true color image was acquired on 14 March 2020. Land area in the image was clipped out in advance. 358 samples were selected by visually inspection and were labeled as ‘TMZ’ and ‘other’ with the number of 203 and 155, respectively. 70% of the samples were randomly selected for training and 30% for testing. The number of decision trees of RF was set to 10 in this study owing to its highest accuracy (a). The overall accuracy of the classification is 0.98 and the spatial extent of the derived TMZ is well consistent with the Landsat image (c). Thus, the result of RF TMZ mapping is reliable.

Table S1. Detailed information of images in Figure 5. Title ‘No.’ is the serial number of Landsat images in Figure 5, ‘Date’ is the acquisition date of images, and ‘OA’ is the overall accuracy calculated from validation samples of each image.

No.	Sensor	Date	OA	No.	Sensor	Date	OA
1	TM	17 July 1984	97.4%	16	TM	2 September 2001	95.6%
2	TM	7 May 1987	97.0%	17	ETM+	17 February 2002	93.7%
3	TM	24 June 1987	91.7%	18	TM	24 September 2003	94.1%
4	TM	9 March 1989	95.4%	19	TM	21 May 2004	99.1%
5	TM	7 January 1990	98.8%	20	TM	22 April 2005	99.0%
6	TM	24 August 1992	97.9%	21	TM	24 May 2005	98.6%
7	TM	9 September 1992	96.7%	22	ETM+	16 March 2006	99.2%
8	TM	10 March 1995	98.3%	23	TM	01 April 2009	93.8%
9	TM	18 September 1995	99.3%	24	TM	03 May 2009	96.8%
10	TM	22 1996	98.1%	25	ETM+	23 August 2012	97.9%
11	TM	11 February 1997	97.0%	26	OLI	05 October 2013	98.7%
12	TM	25 August 1998	99.1%	27	OLI	25 January 2014	97.8%
13	TM	6 April 1999	97.4%	28	OLI	03 October 2018	100.0%
14	ETM+	28 February 2000	95.2%	29	OLI	23 January 2019	99.3%
15	TM	8 April 2000	98.6%	30	OLI	19 August 2019	98.2%