

Instances

This supplementary material presents the instances used in this work. To test the proposed algorithms, 20 test instances were selected from the operational data of the Tubarão Port. This port has 23 stockyards, 11 iron ore reclaimers, and $\max_h = 2$ stockpiles can be loaded simultaneously in each ship h . These instances have up to 56 stockpiles and up to 10 ships to be loaded. The quantity of iron ore to be loaded ranges between 80,000 and 1,685,514 tonnes, and the planning horizon varies between 50.5 and 532.6 hours. Table 1 details the instance characteristics. Column “Instance ID” shows the instance identification. Columns “# Stockpiles” and “# Ships” present the number of stockpiles and ships, respectively. Column “Total to be loaded” reports the quantity of iron ore loaded in tonnes. Finally, the column “Horizon planning” displays the planning horizon in hours.

Table 1.: Instance characteristics

Instance ID	# Stockpiles	# Ships	Total to be loaded (tonnes)	Horizon planning (h)
01	8	3	410,500	127.2
02	12	3	507,450	101.7
03	18	4	724,314	101.7
04	22	5	835,314	101.7
05	24	7	757,546	225.1
06	12	4	250,096	120.7
07	25	4	622,600	105.2
08	34	5	790,750	105.2
09	8	2	114,550	143.2
10	32	5	900,610	150.5
11	7	2	80,000	217.0
12	16	3	351,587	113.8
14	35	5	804,542	181.9
15	23	5	785,469	316.7
16	41	9	1,189,552	532.6
17	8	1	393,400	50.5
18	56	10	1,685,514	196.7
19	14	2	465,000	76.0
20	15	3	411,000	77.6