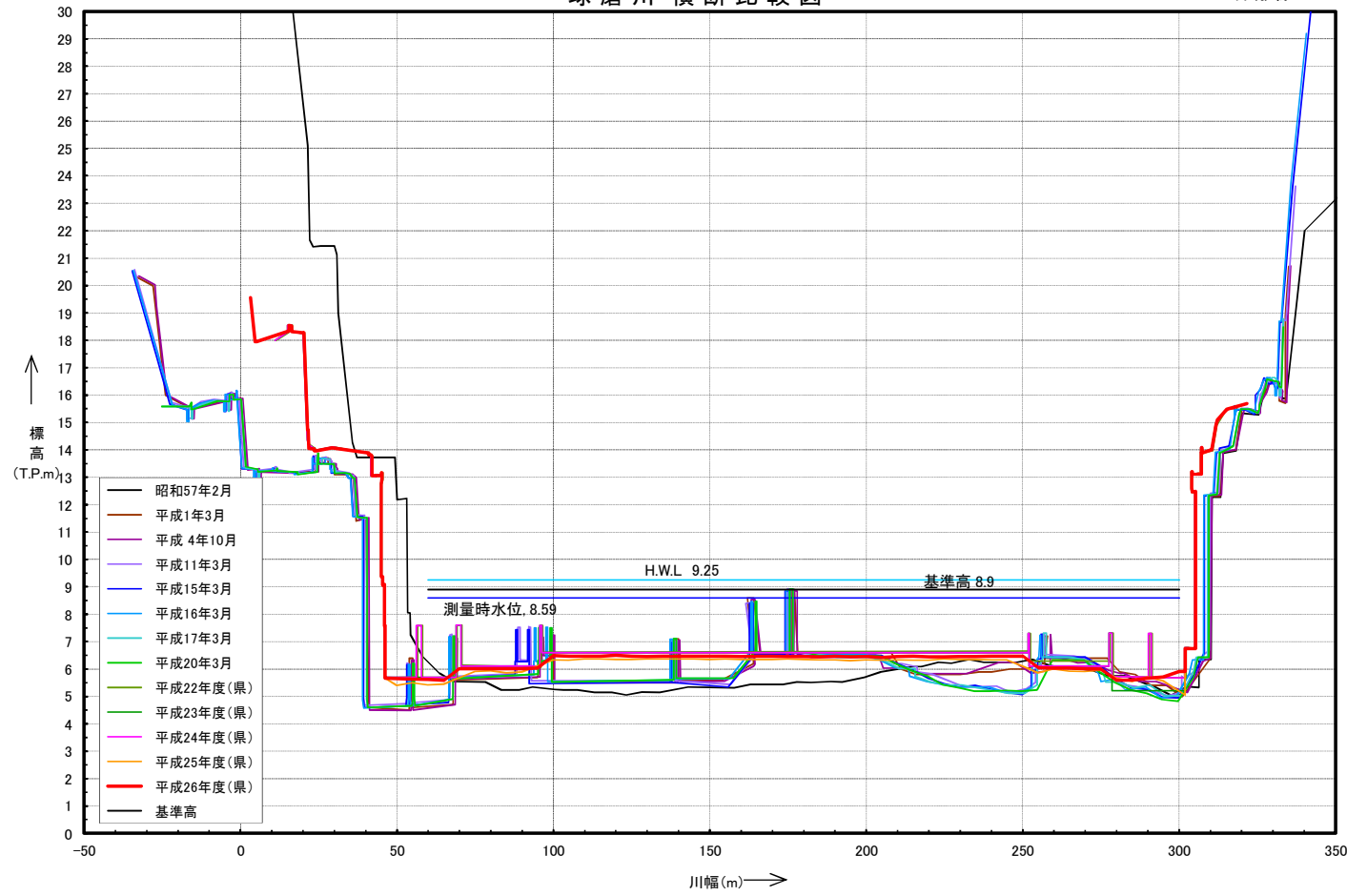


(2) 基盤環境（河川形状）

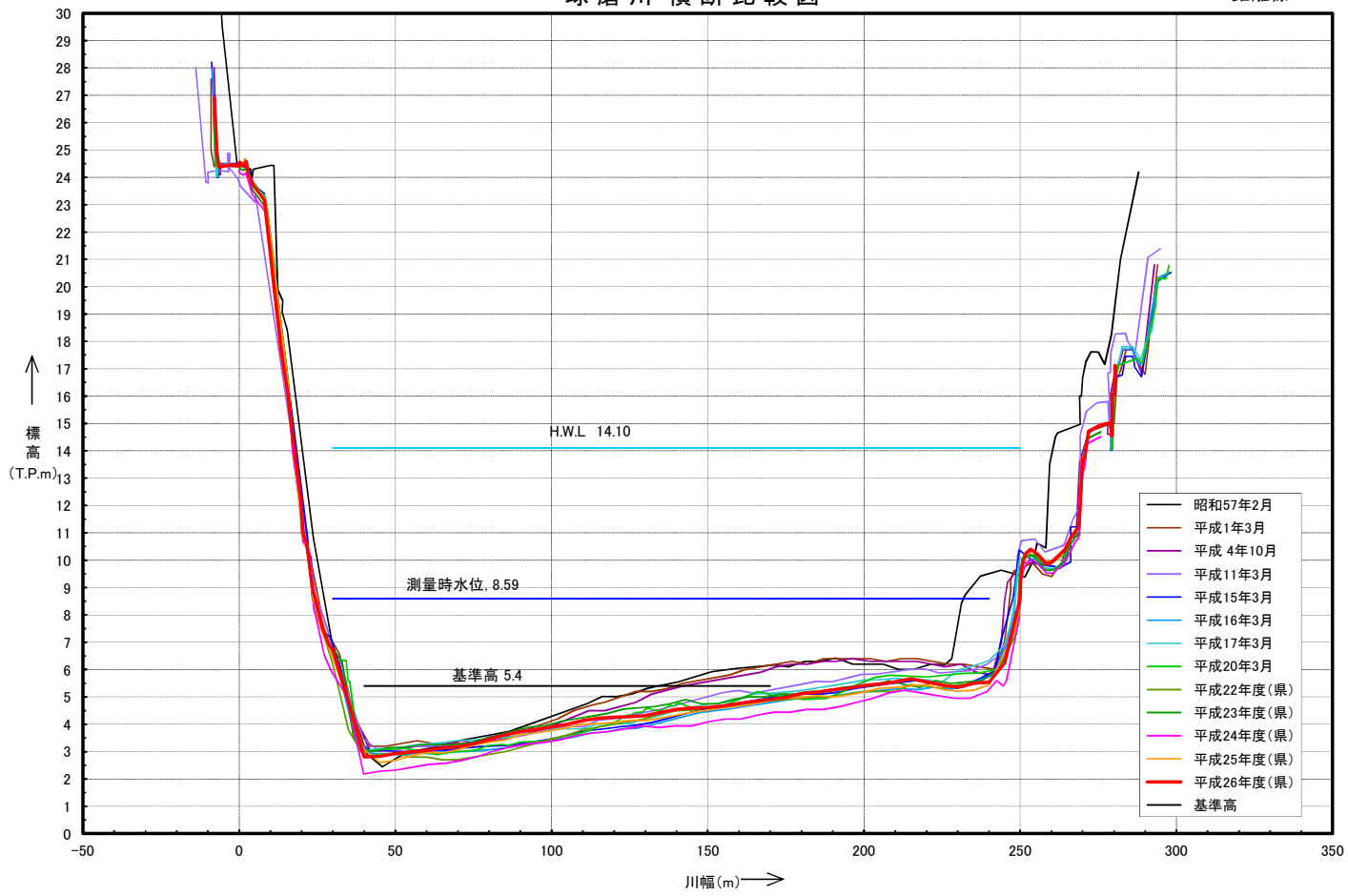
球磨川 横断比較図

距離標 9.00



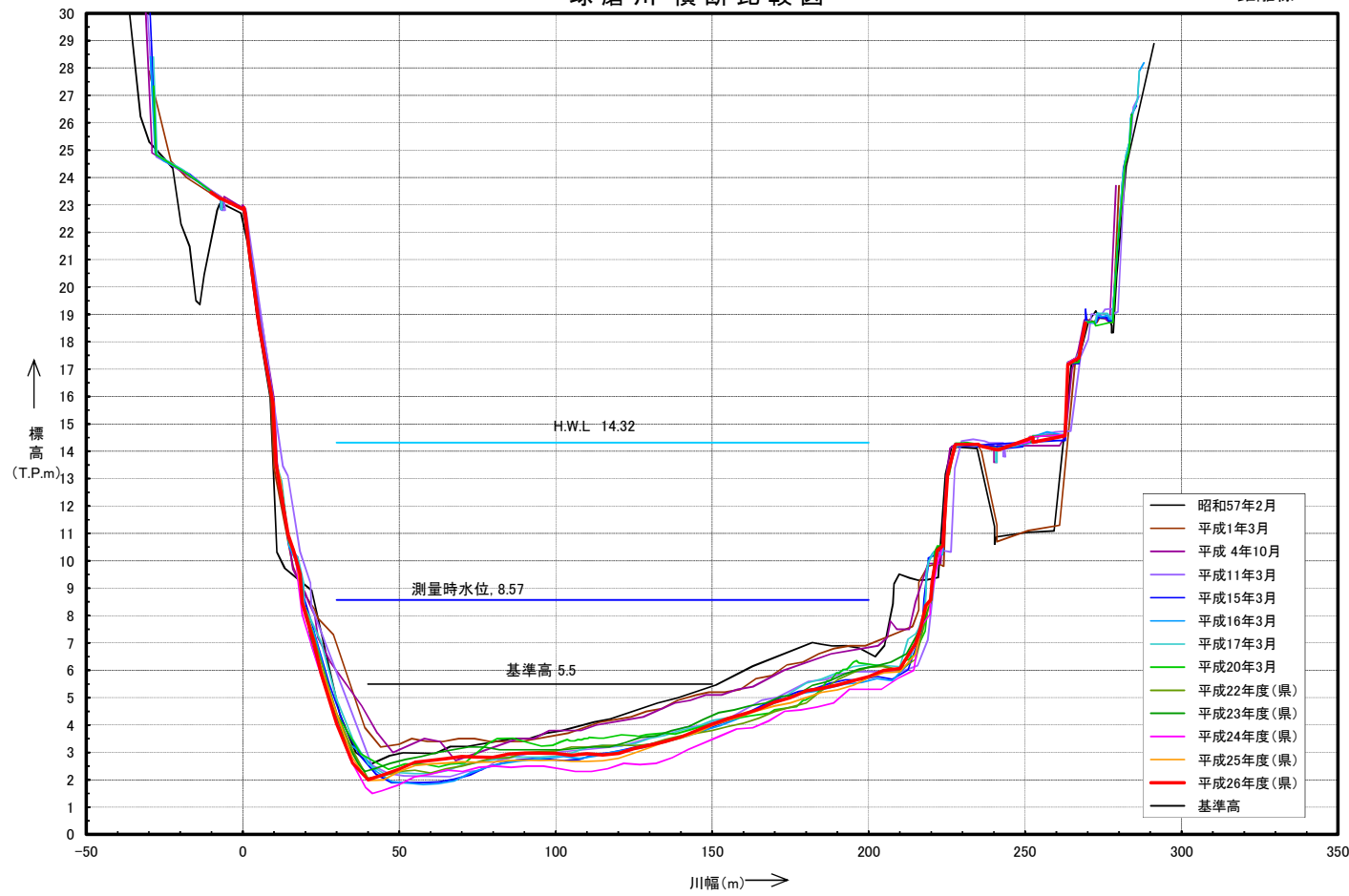
球磨川 横断比較図

距離標 9.20



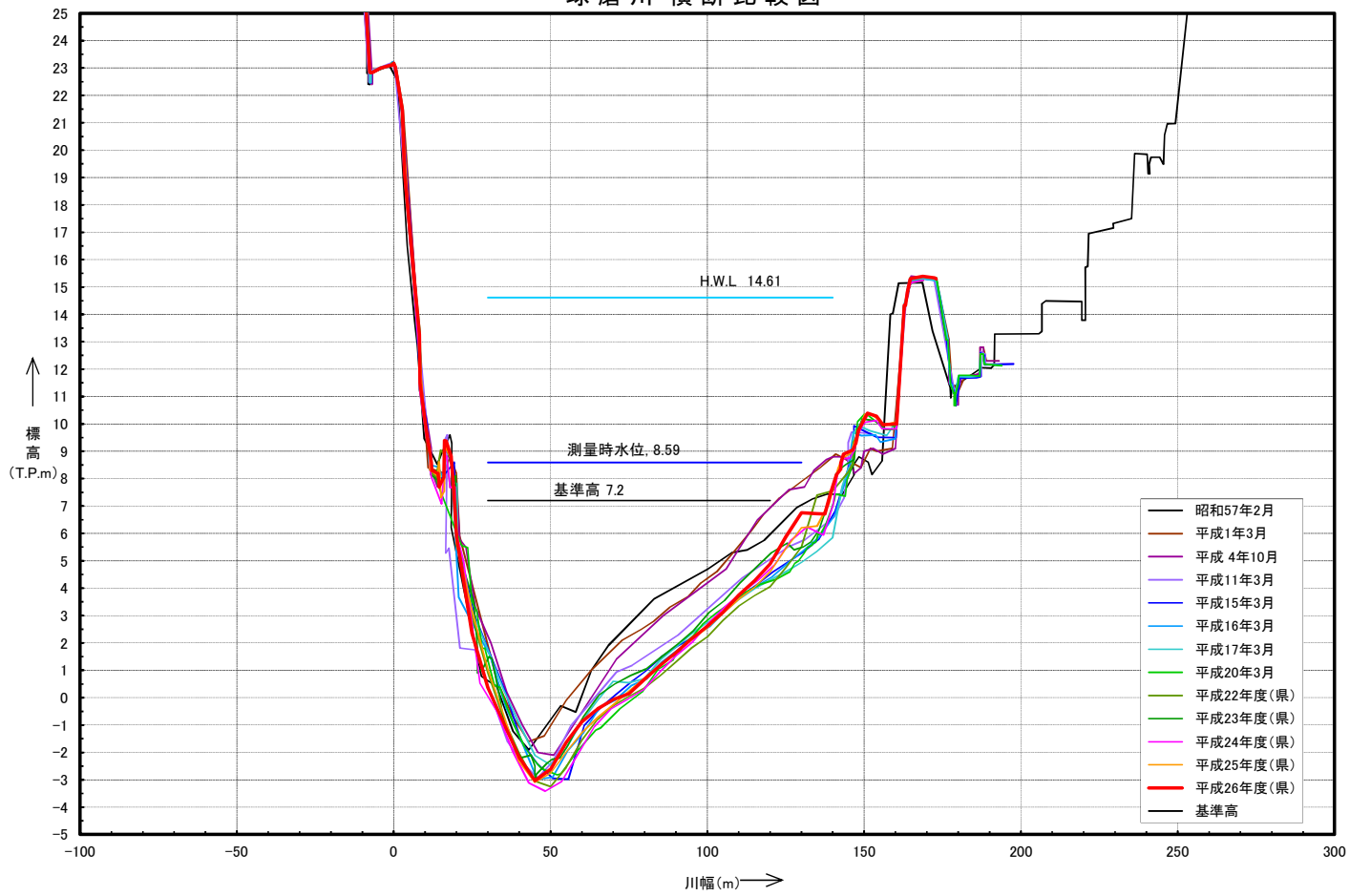
球磨川 横断比較図

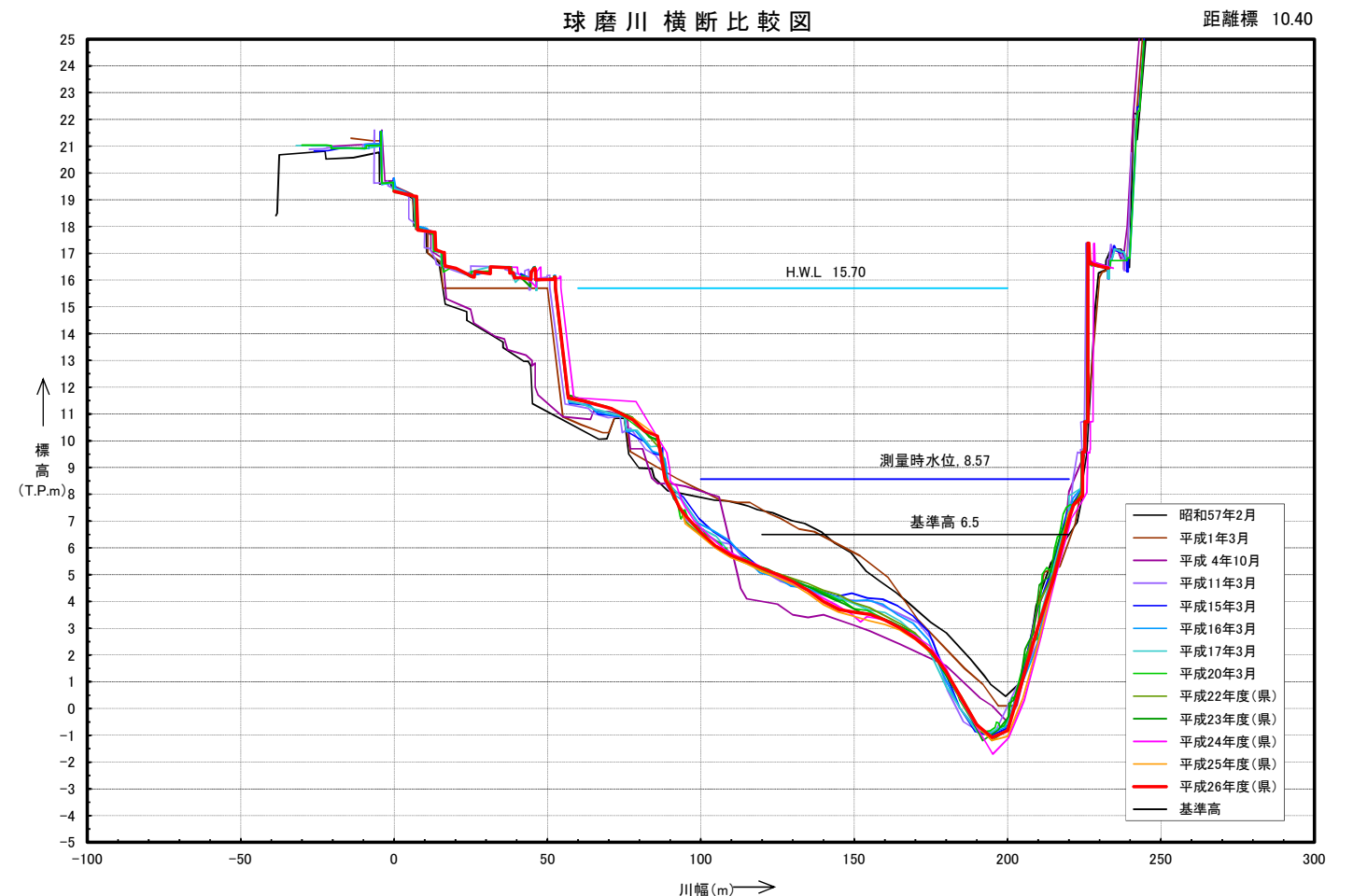
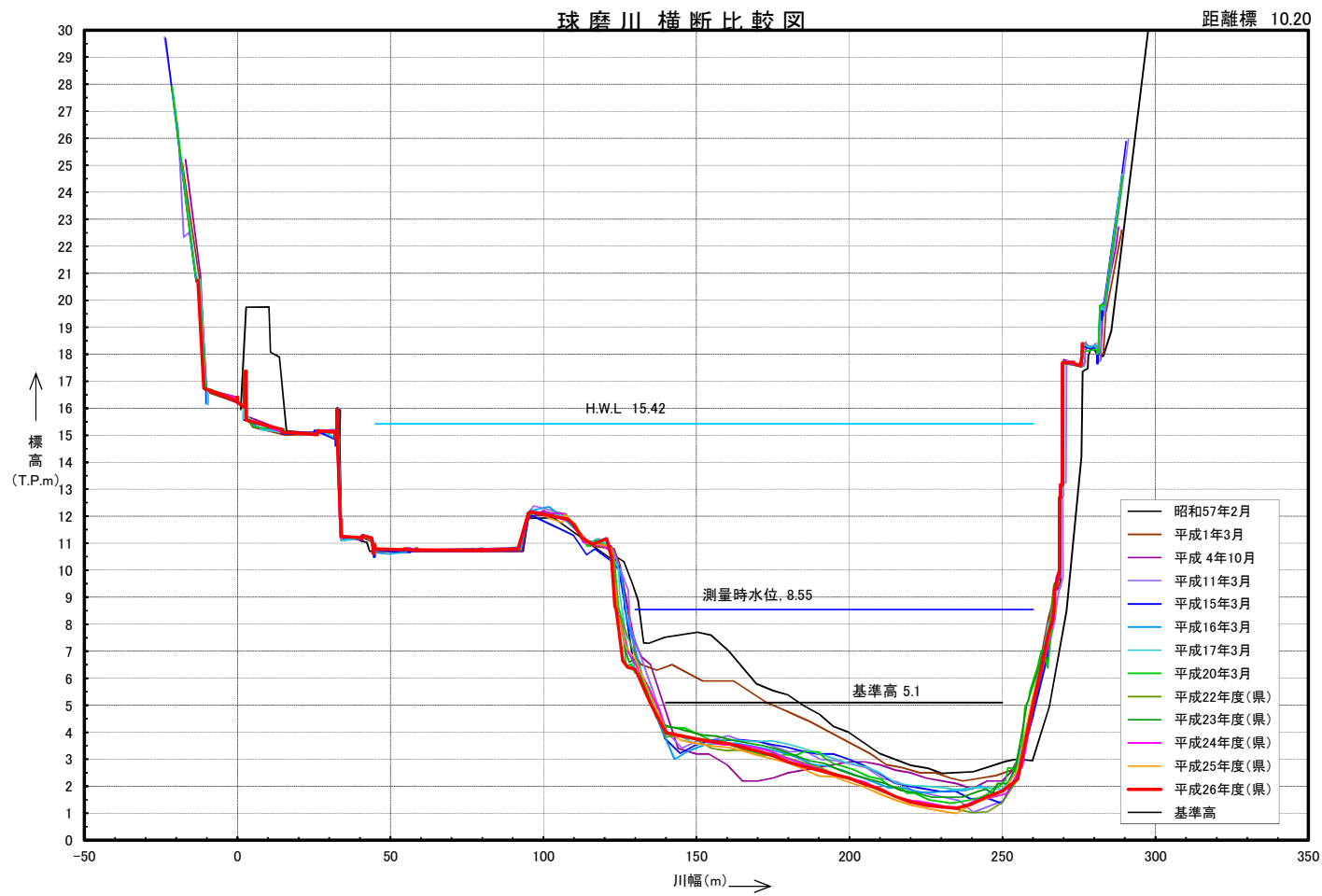
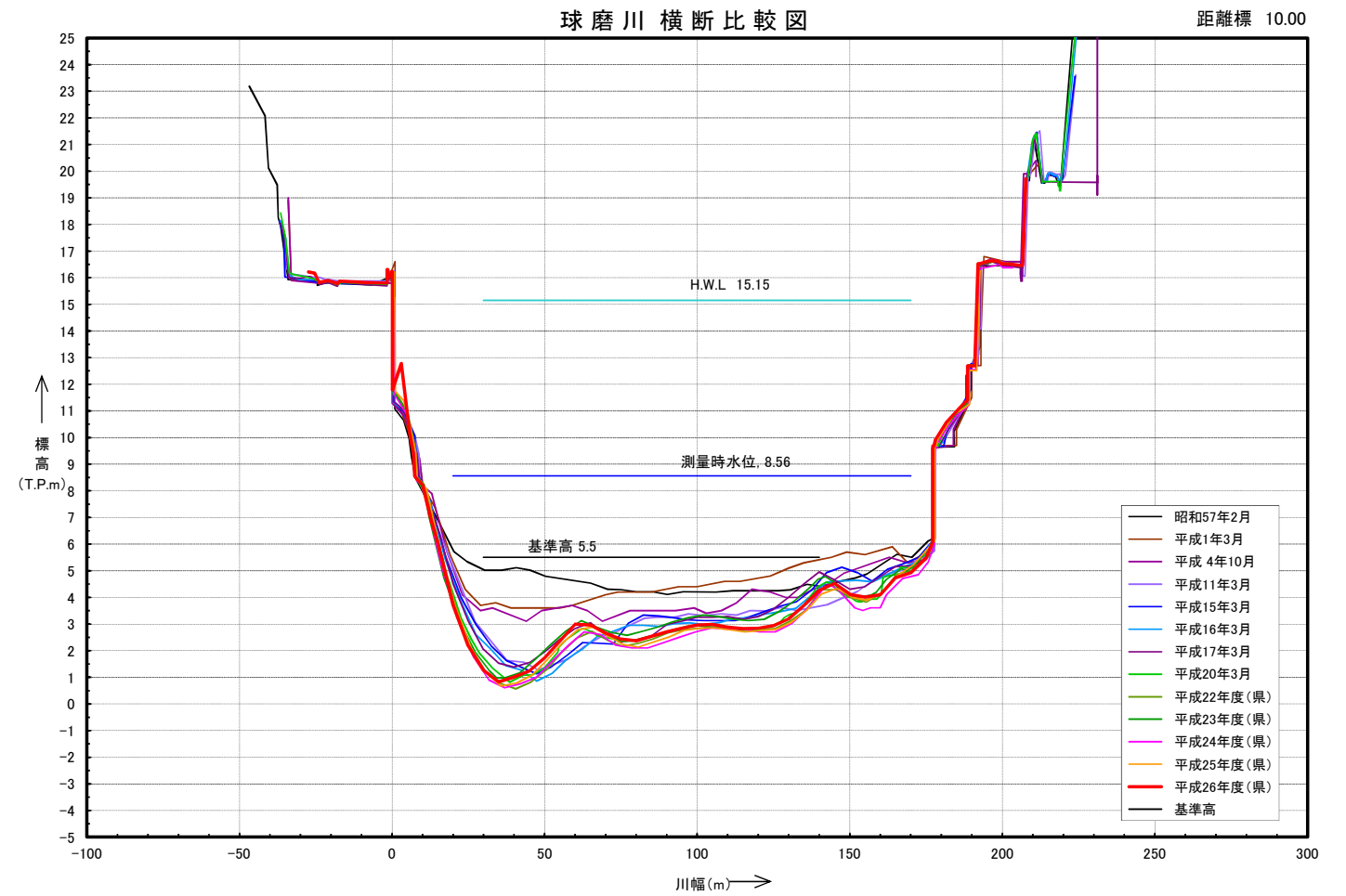
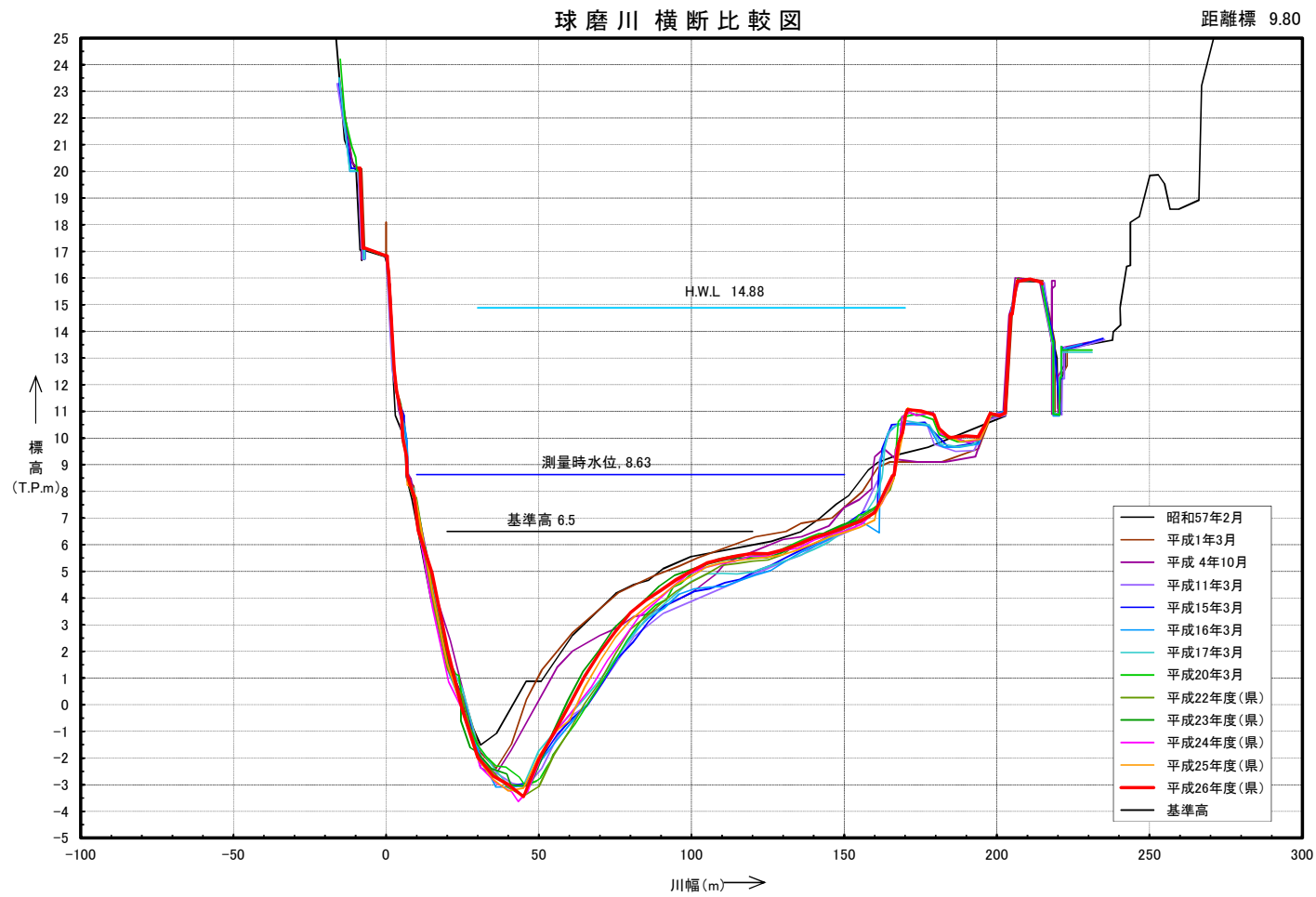
距離標 9.40

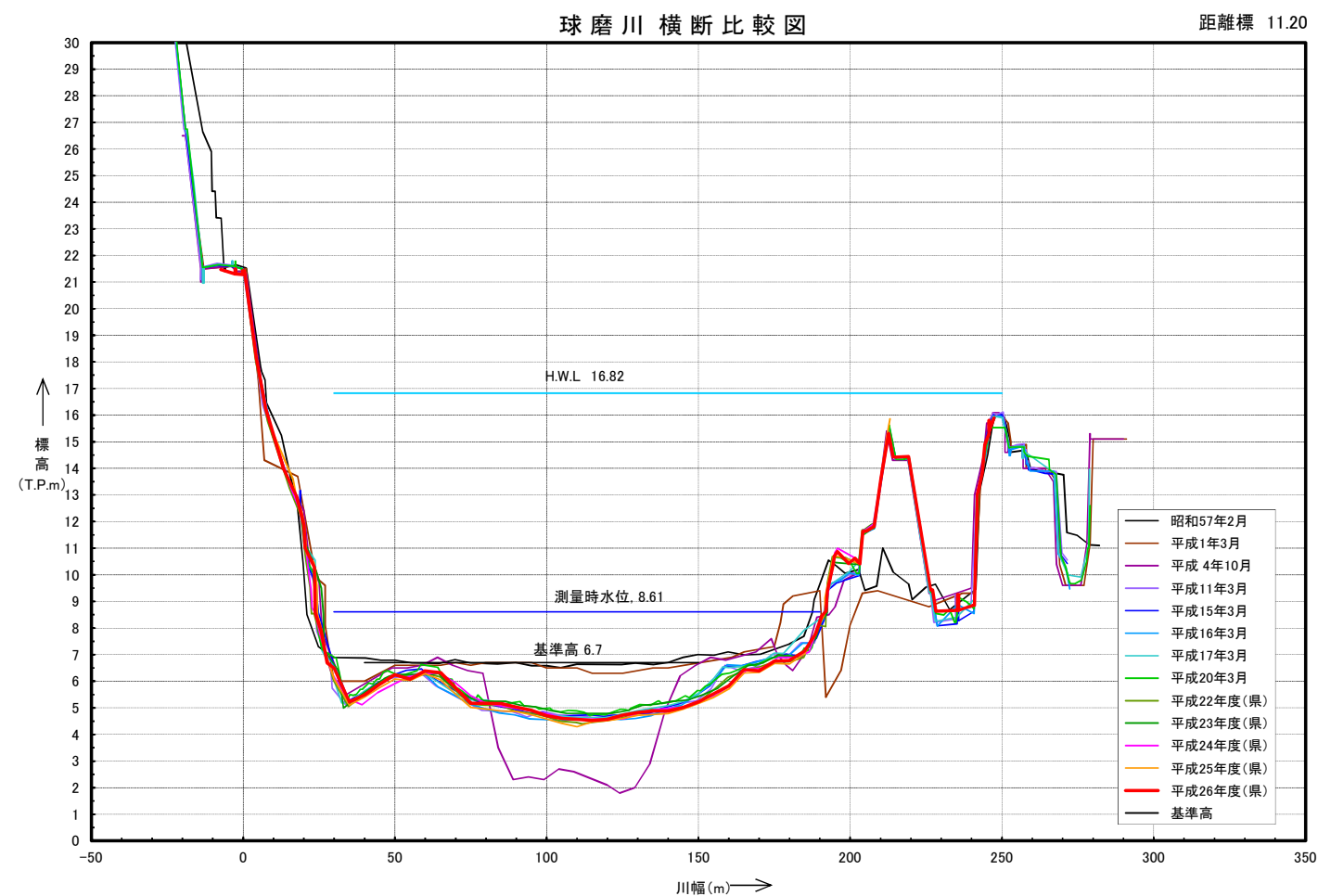
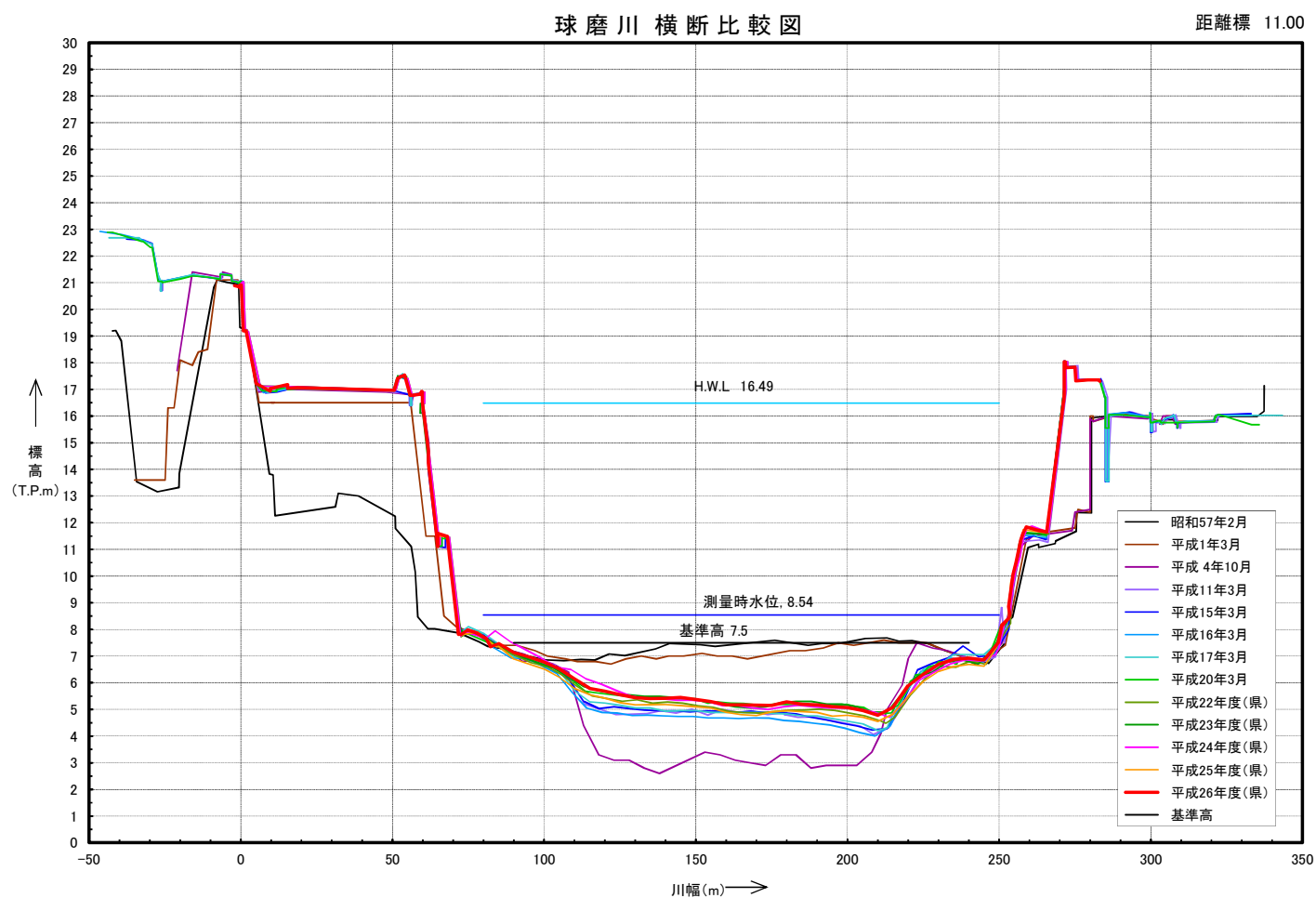
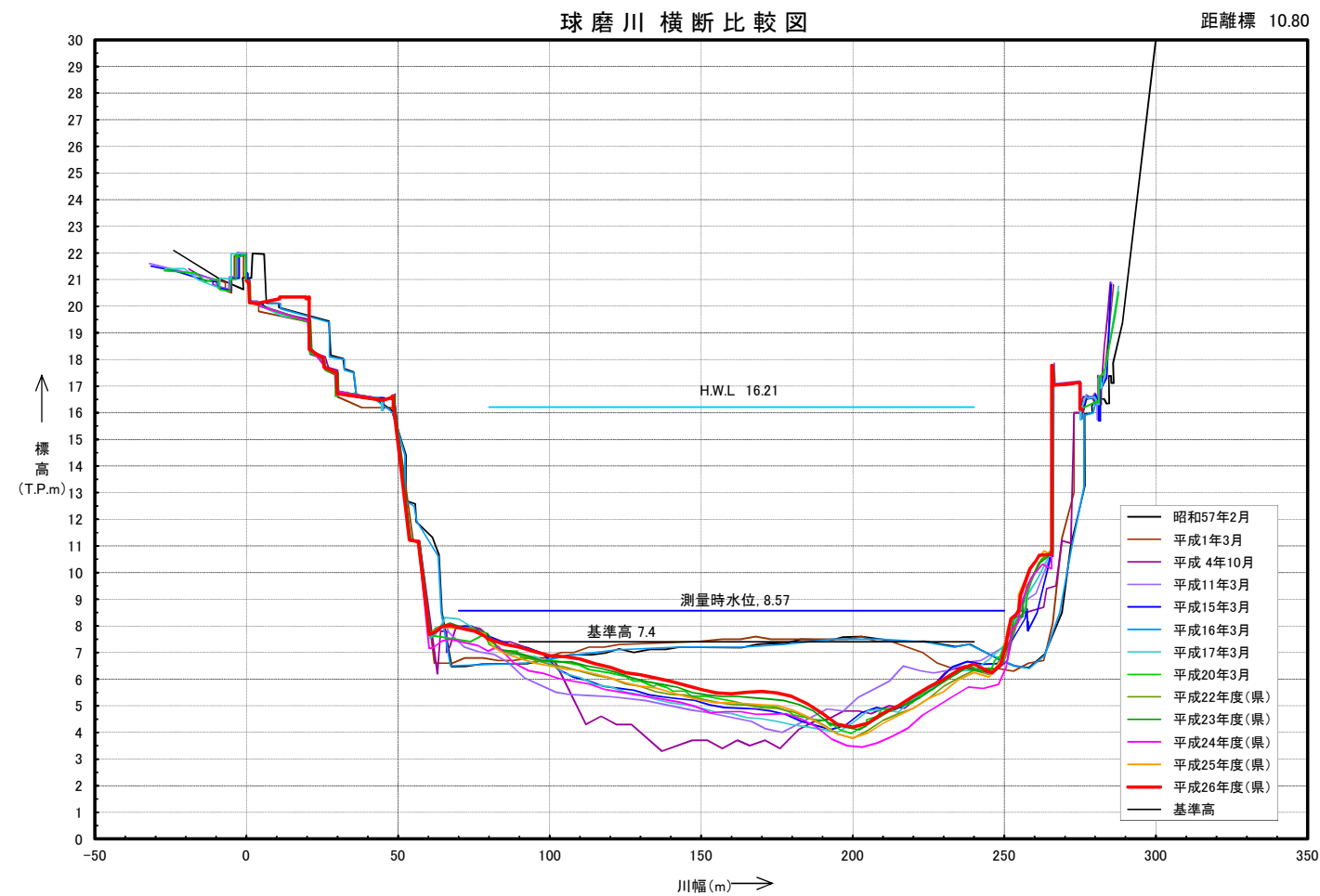
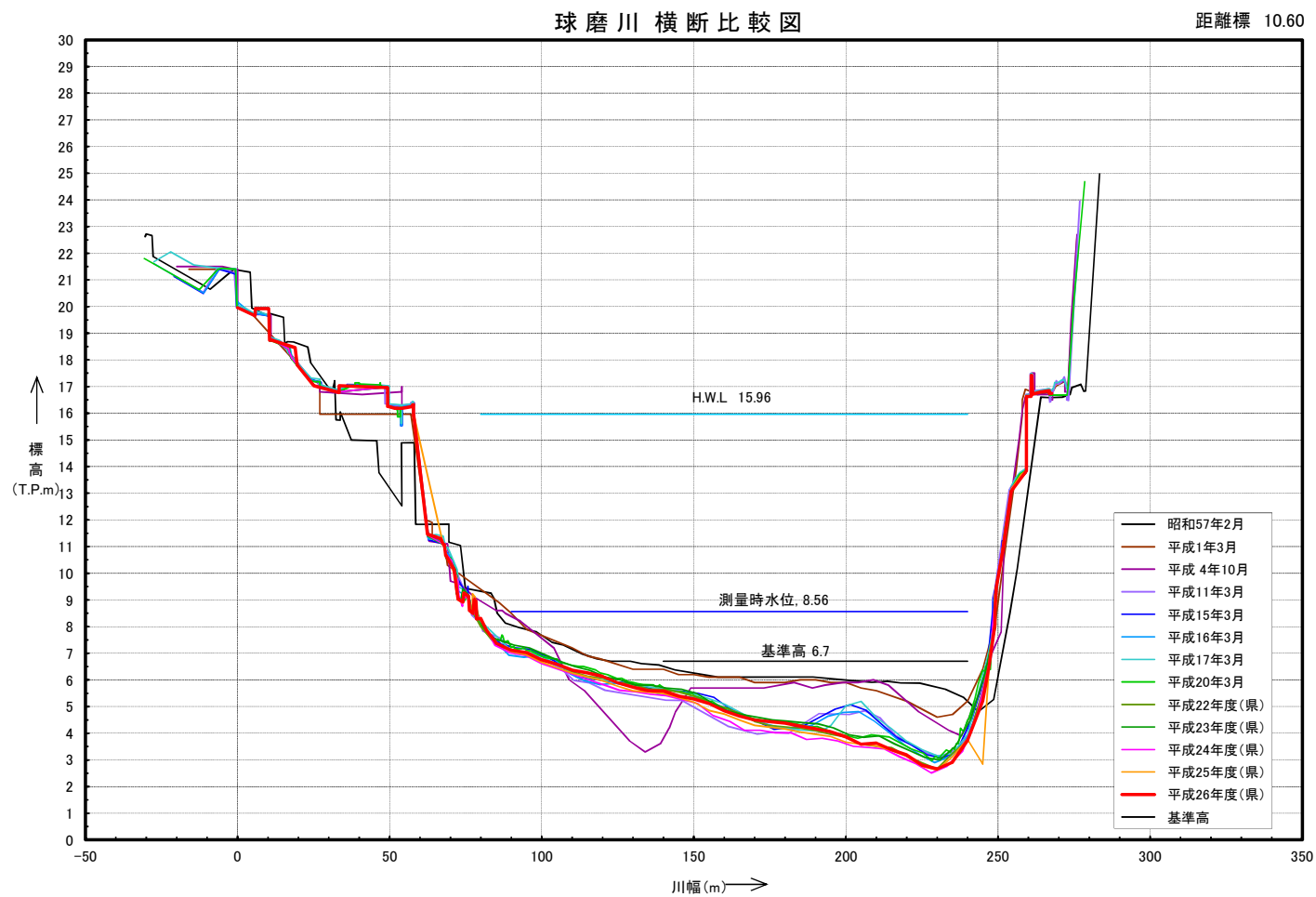


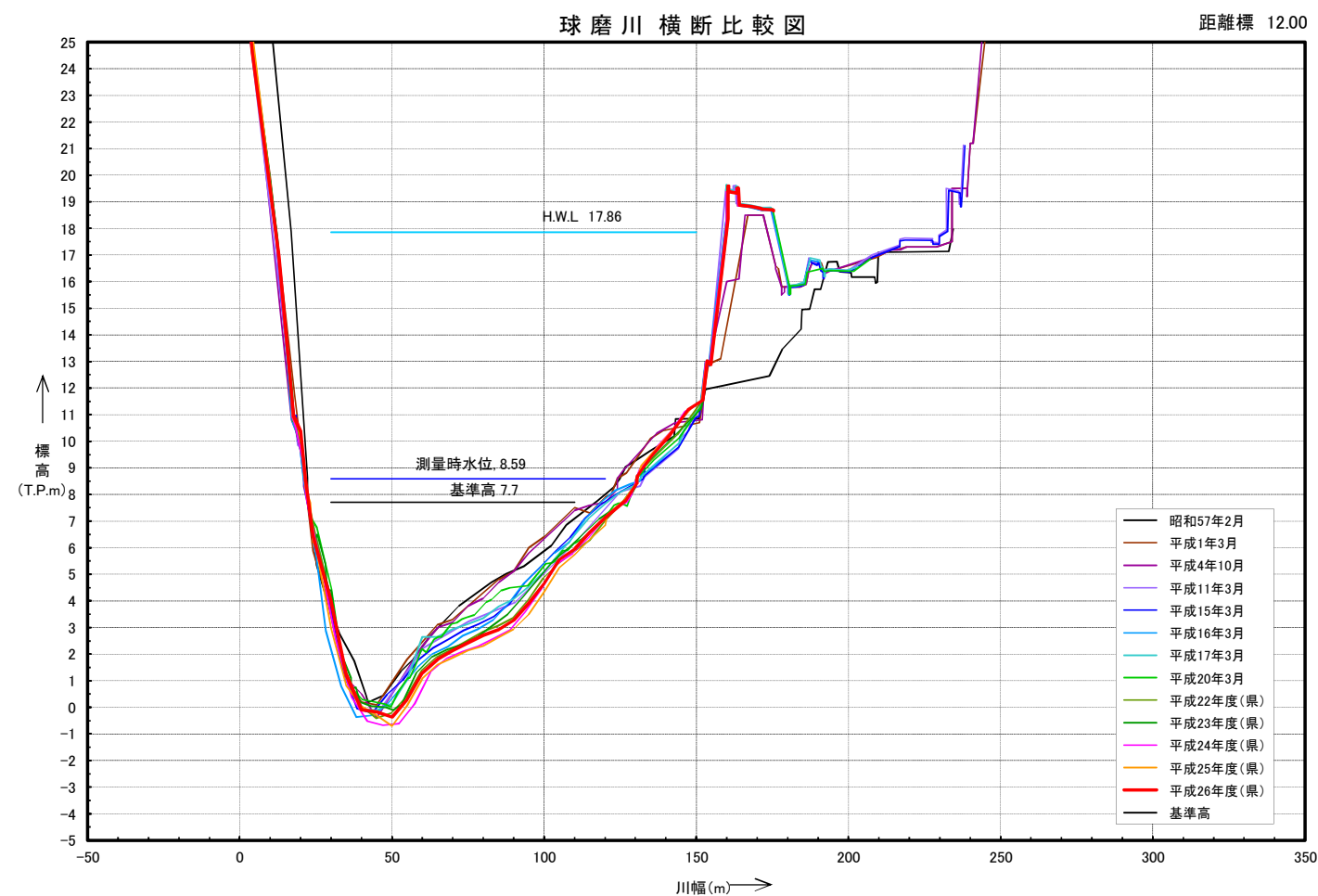
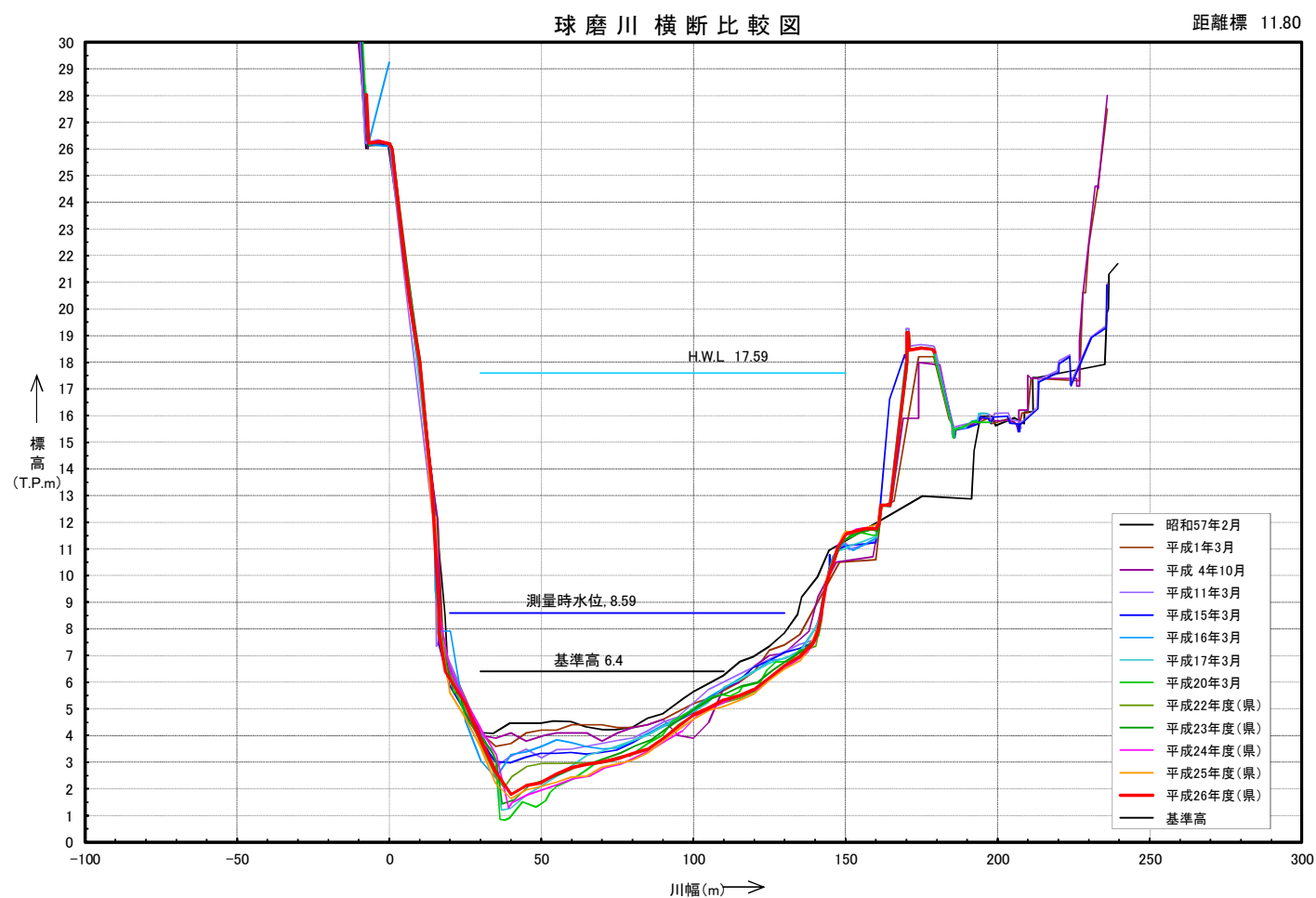
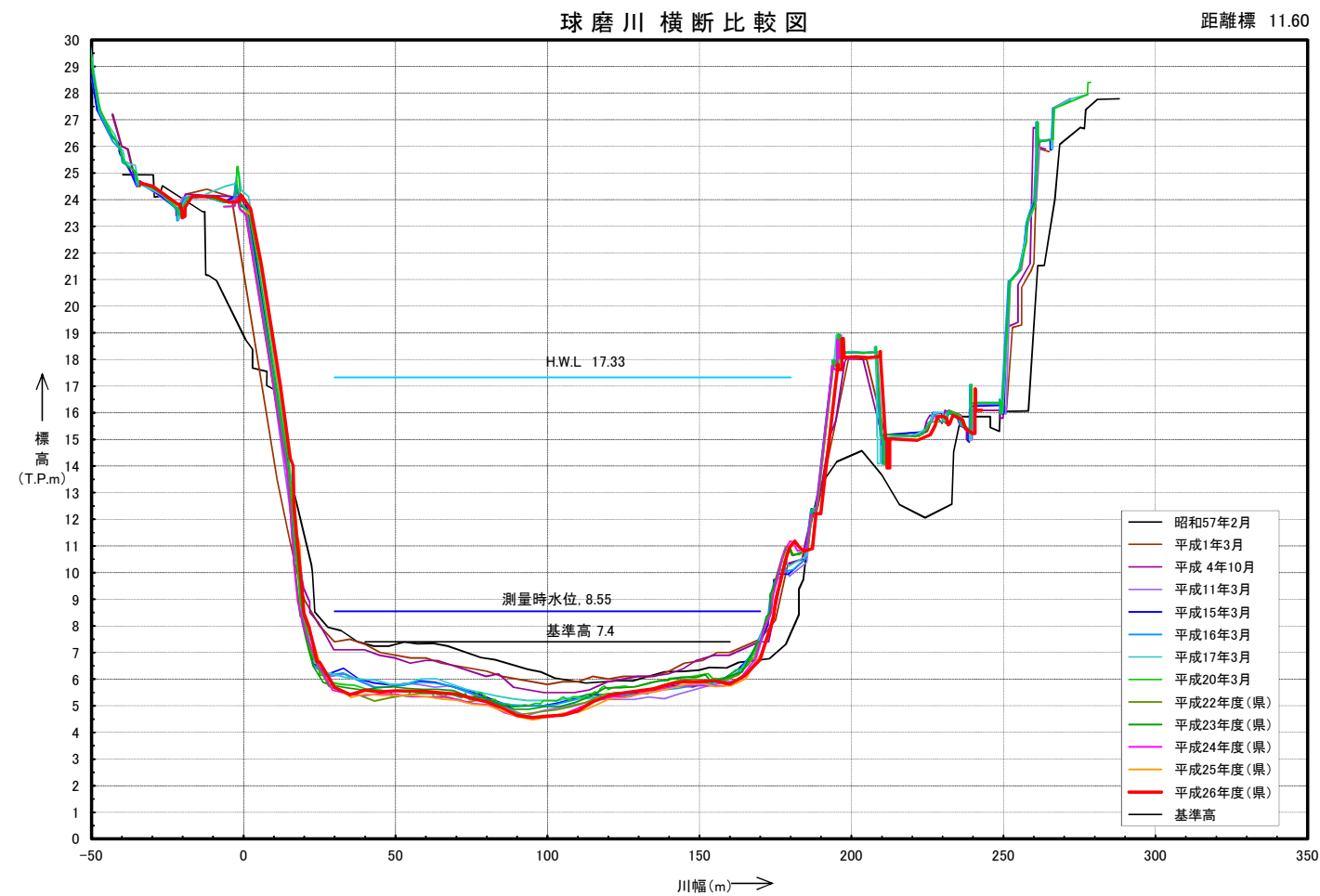
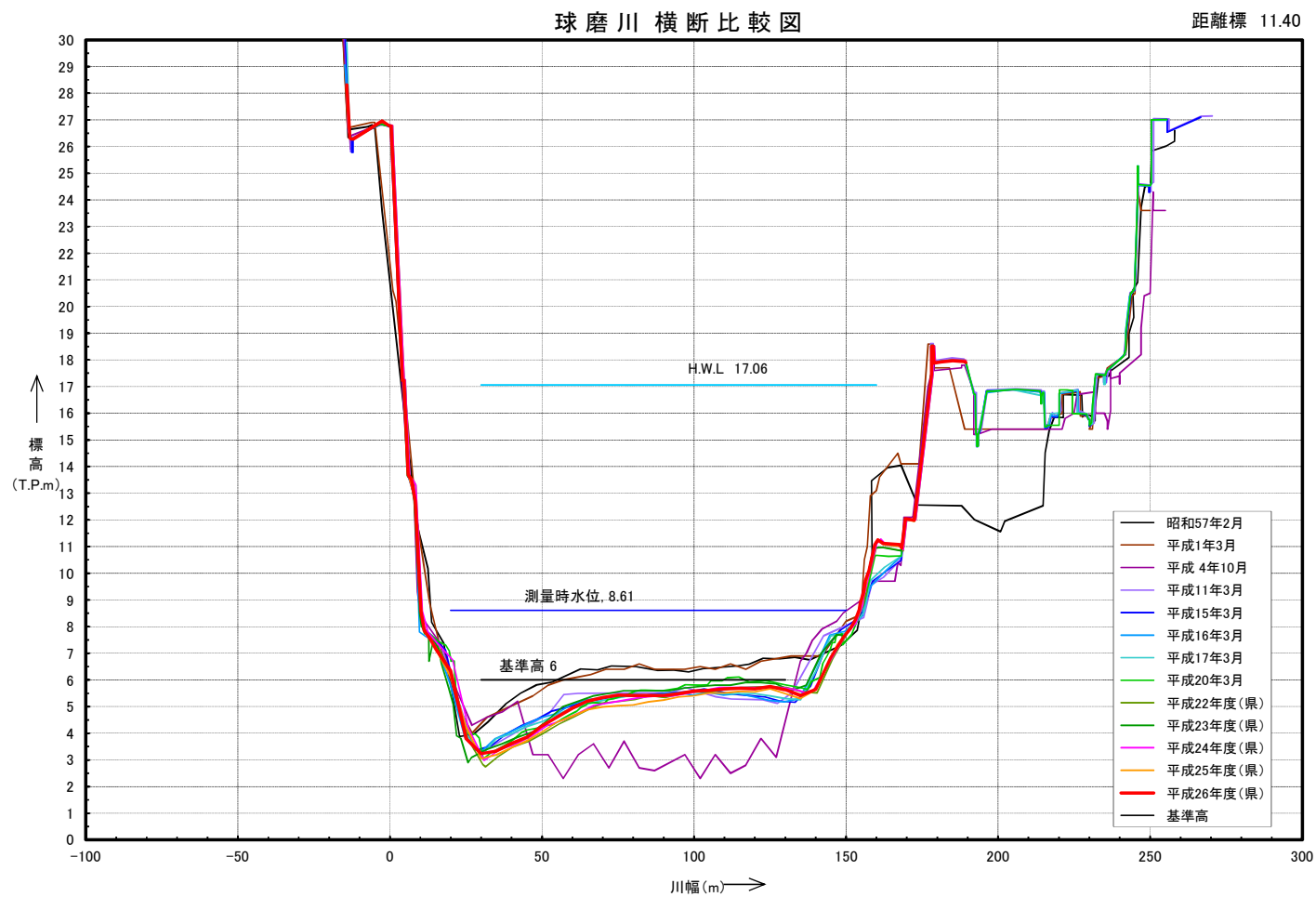
球磨川 横断比較図

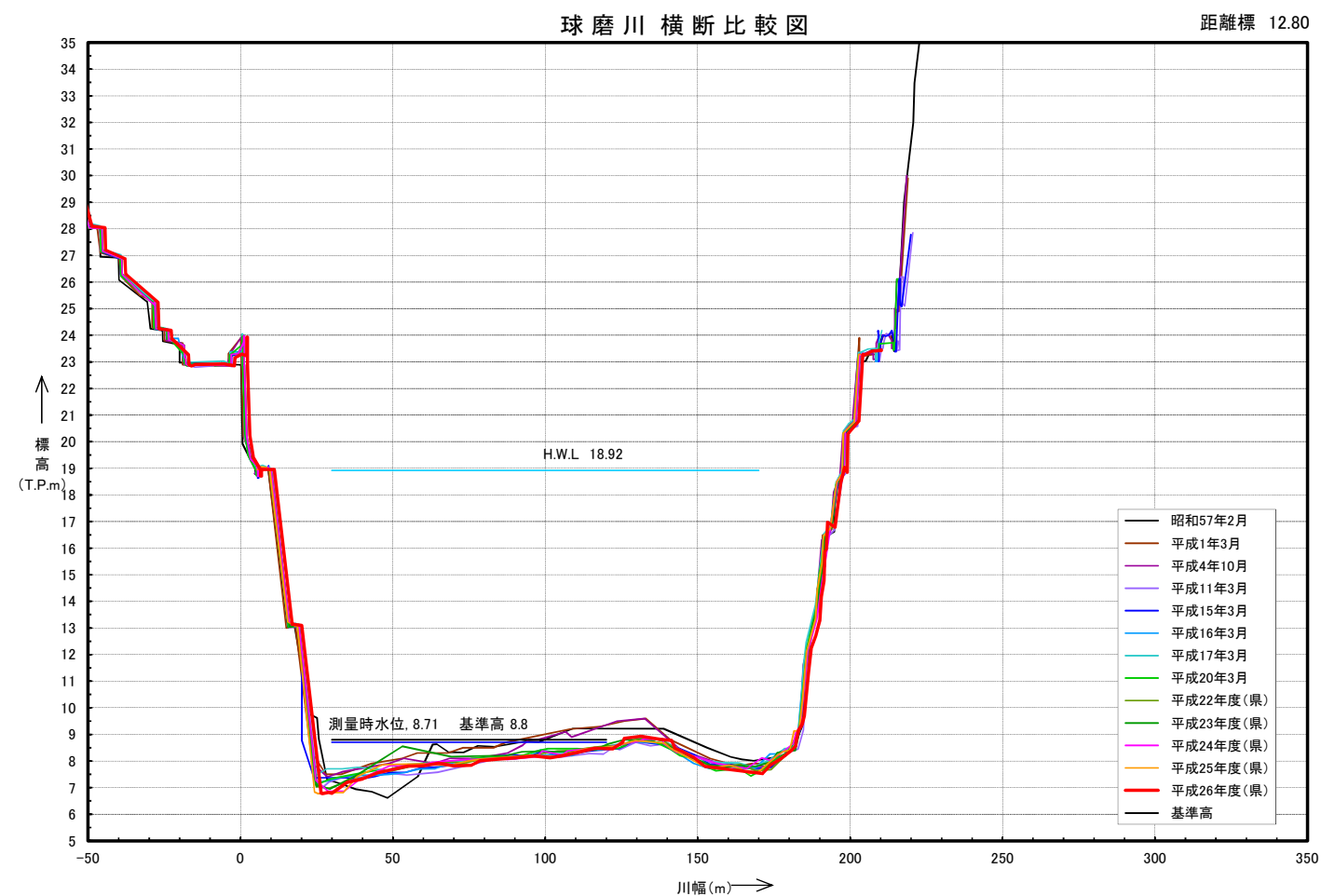
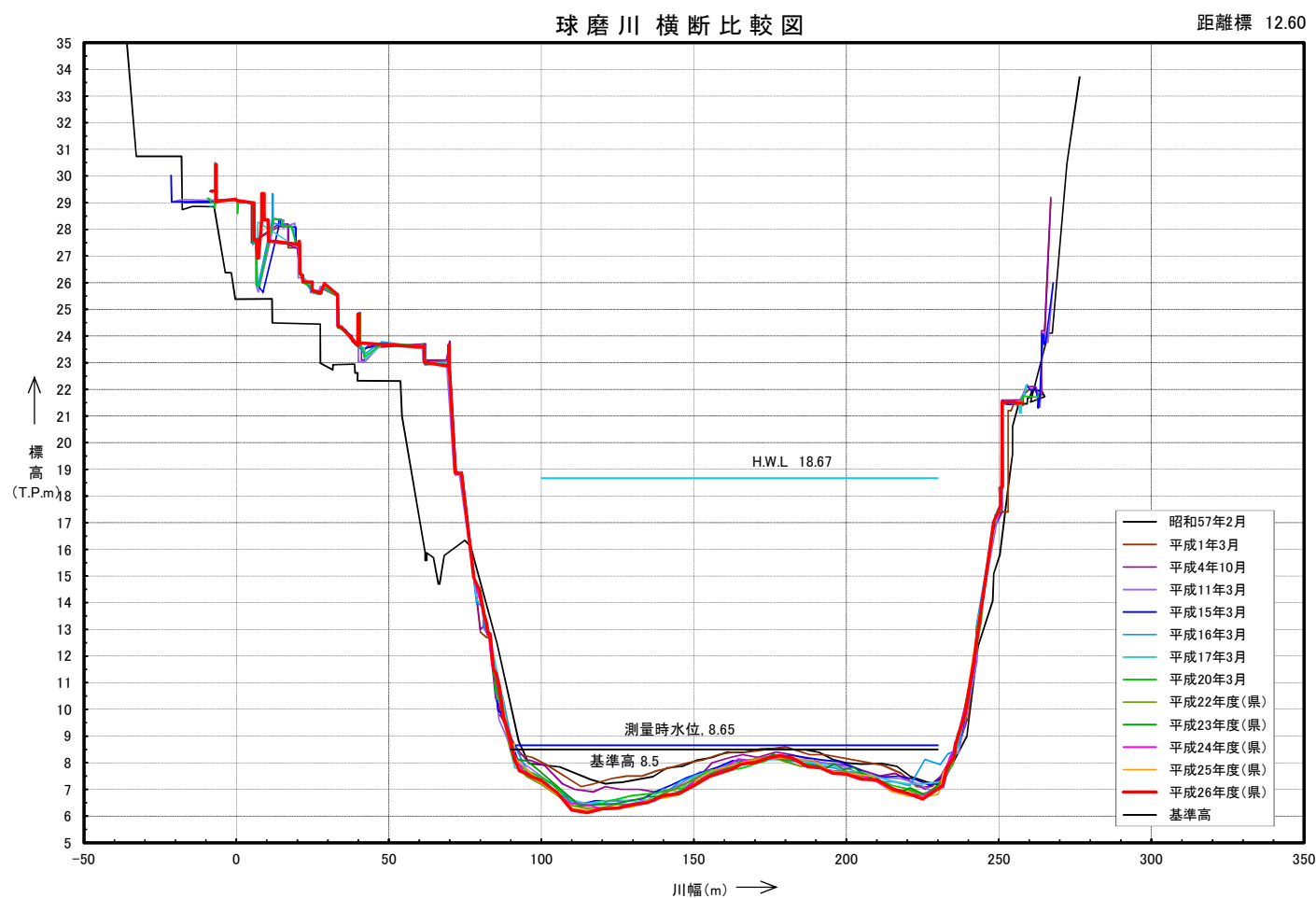
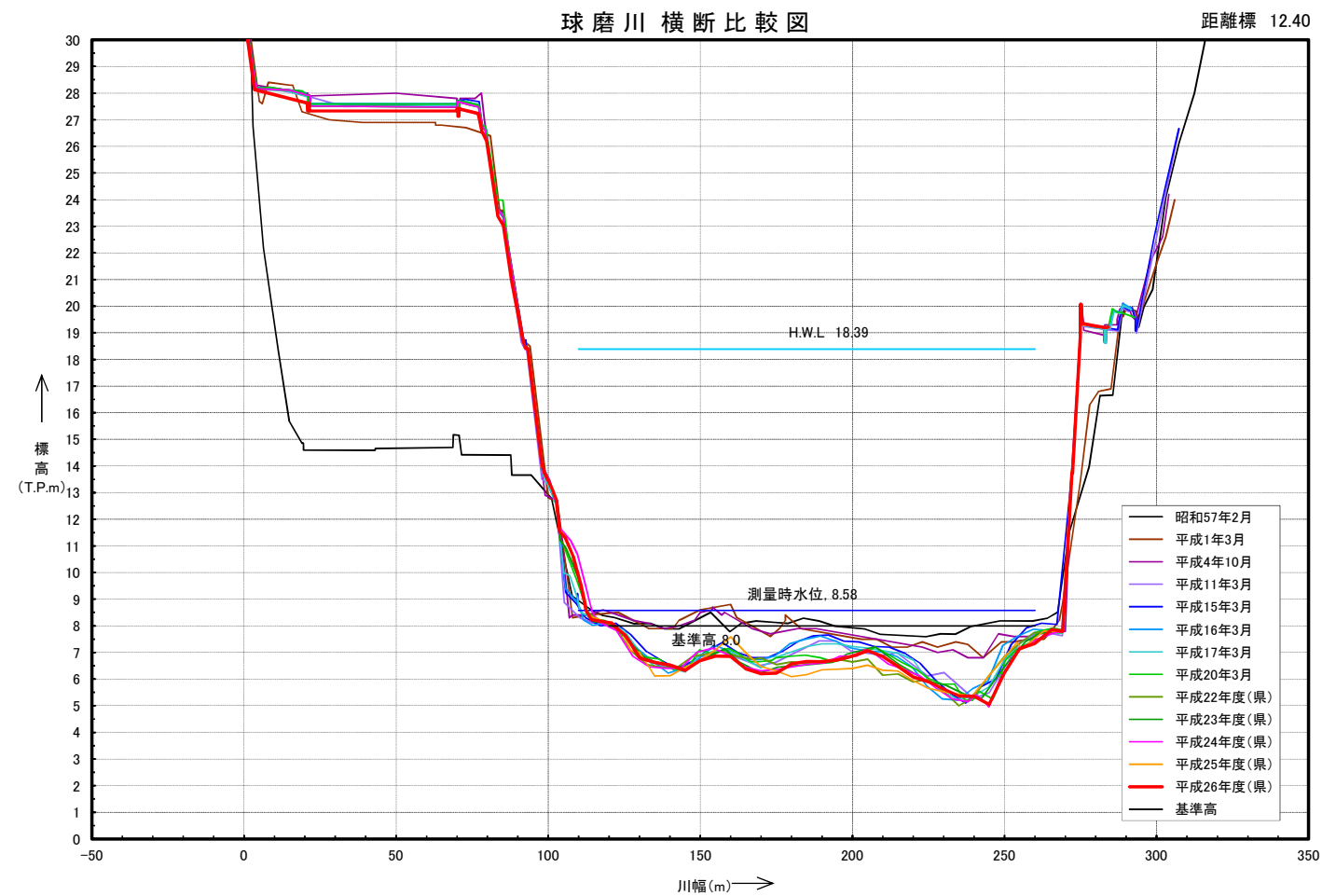
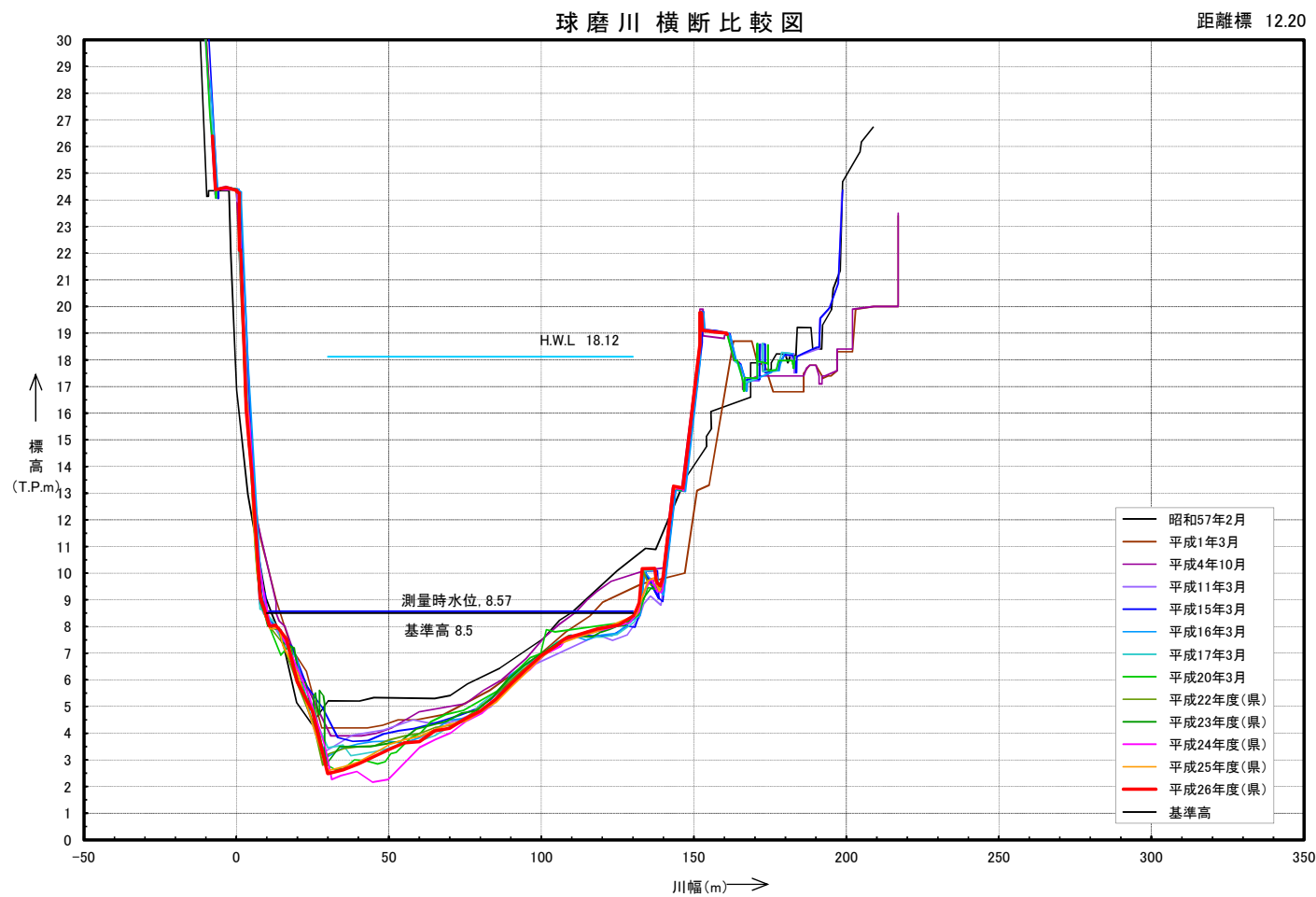
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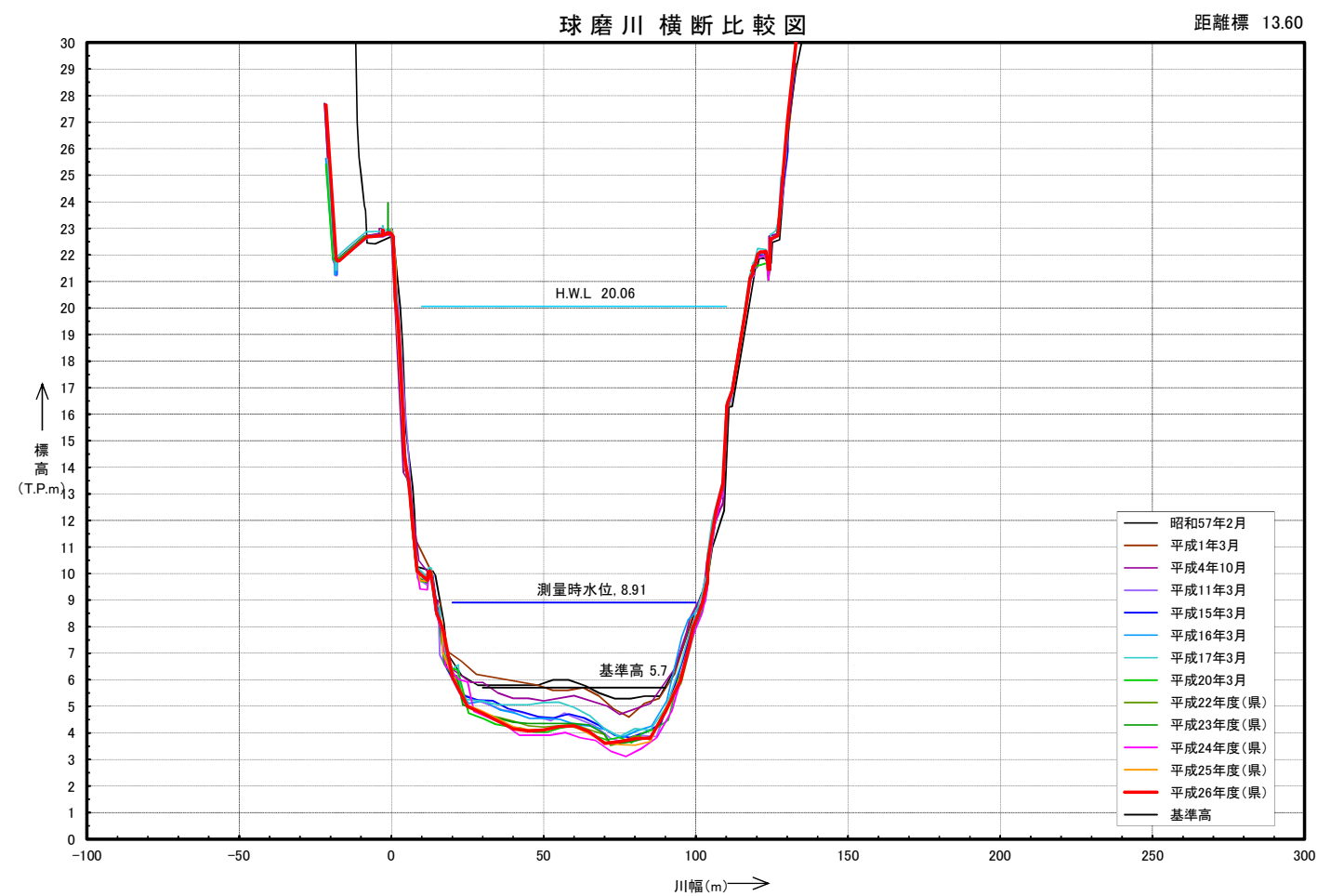
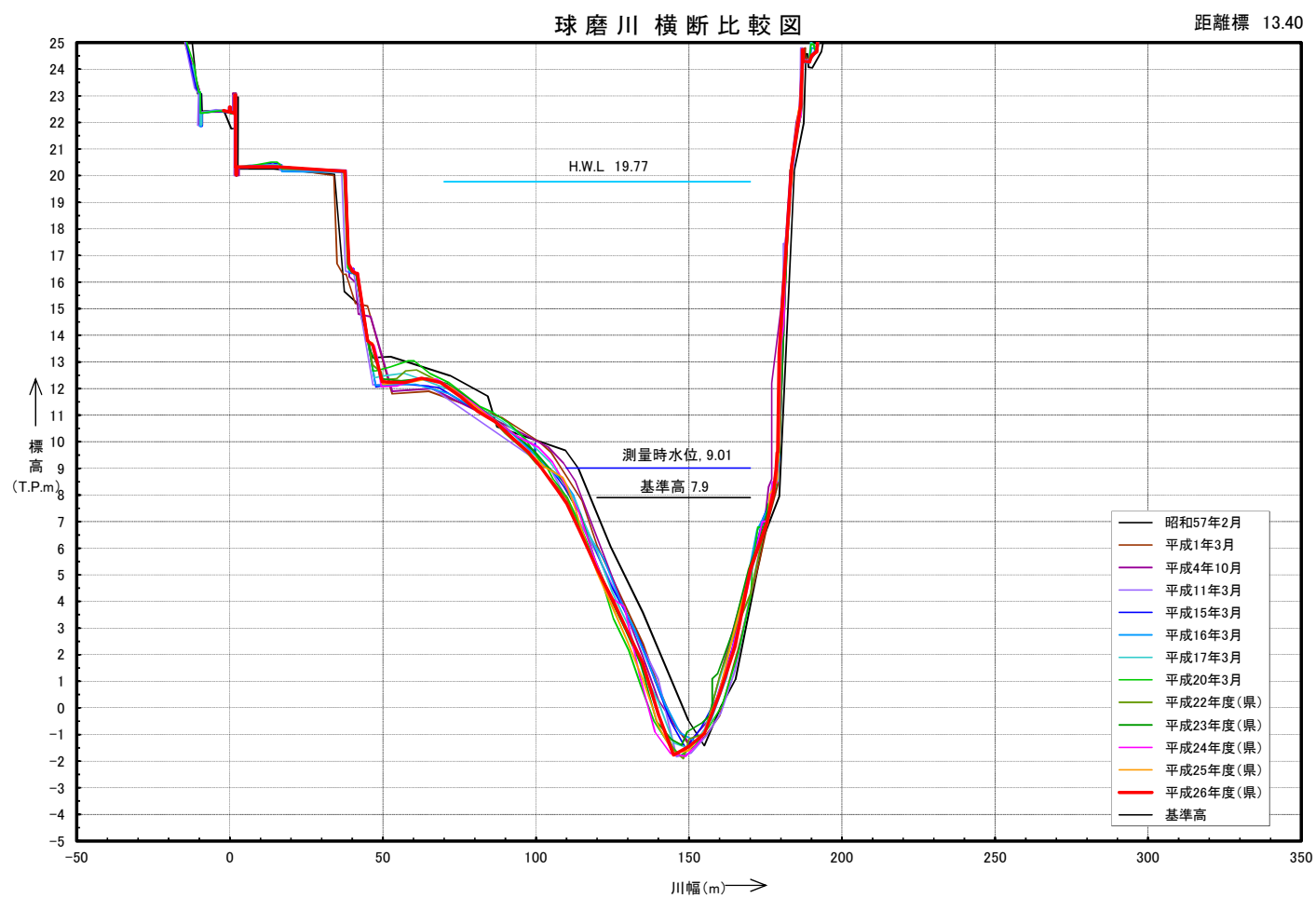
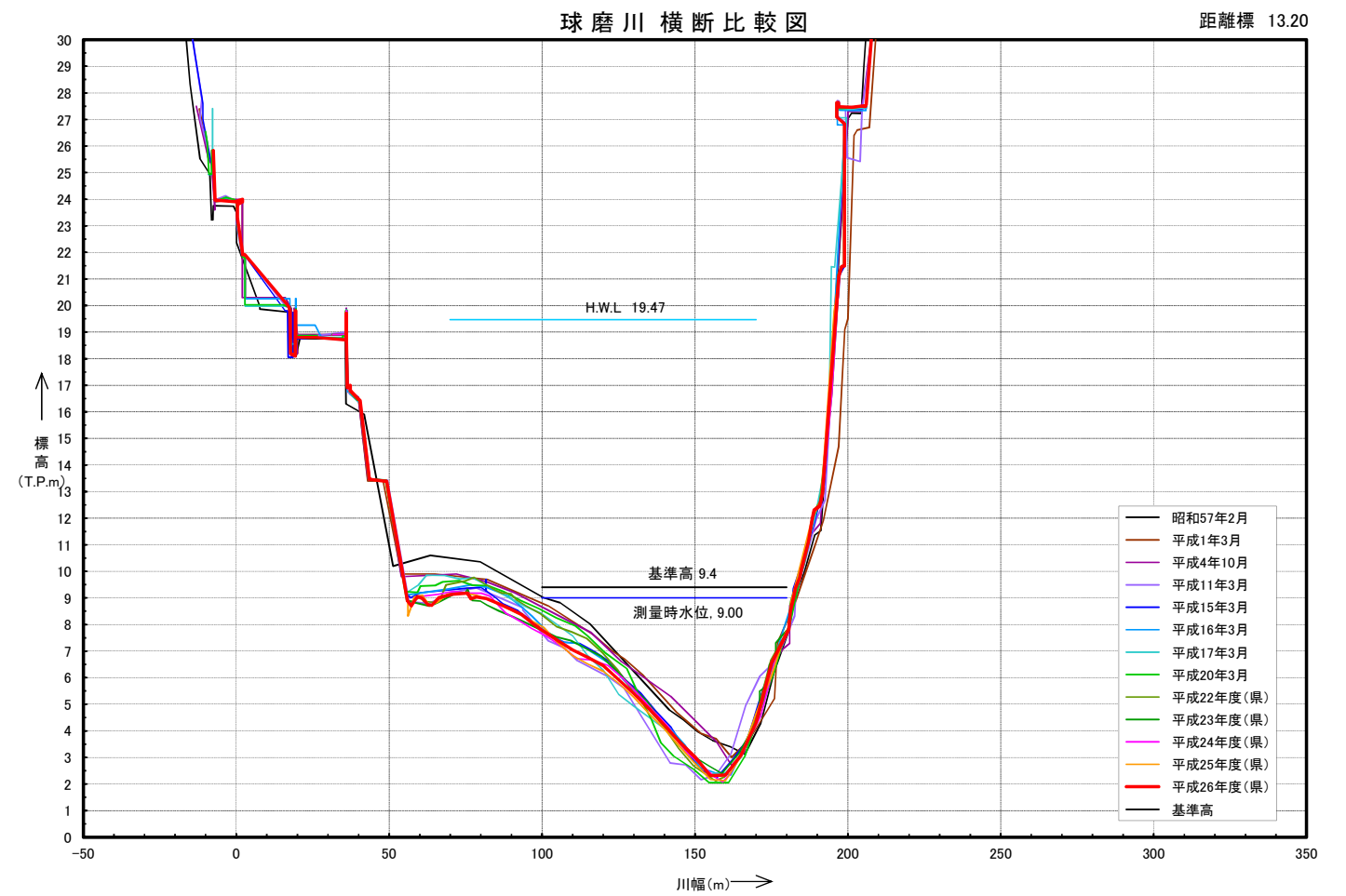
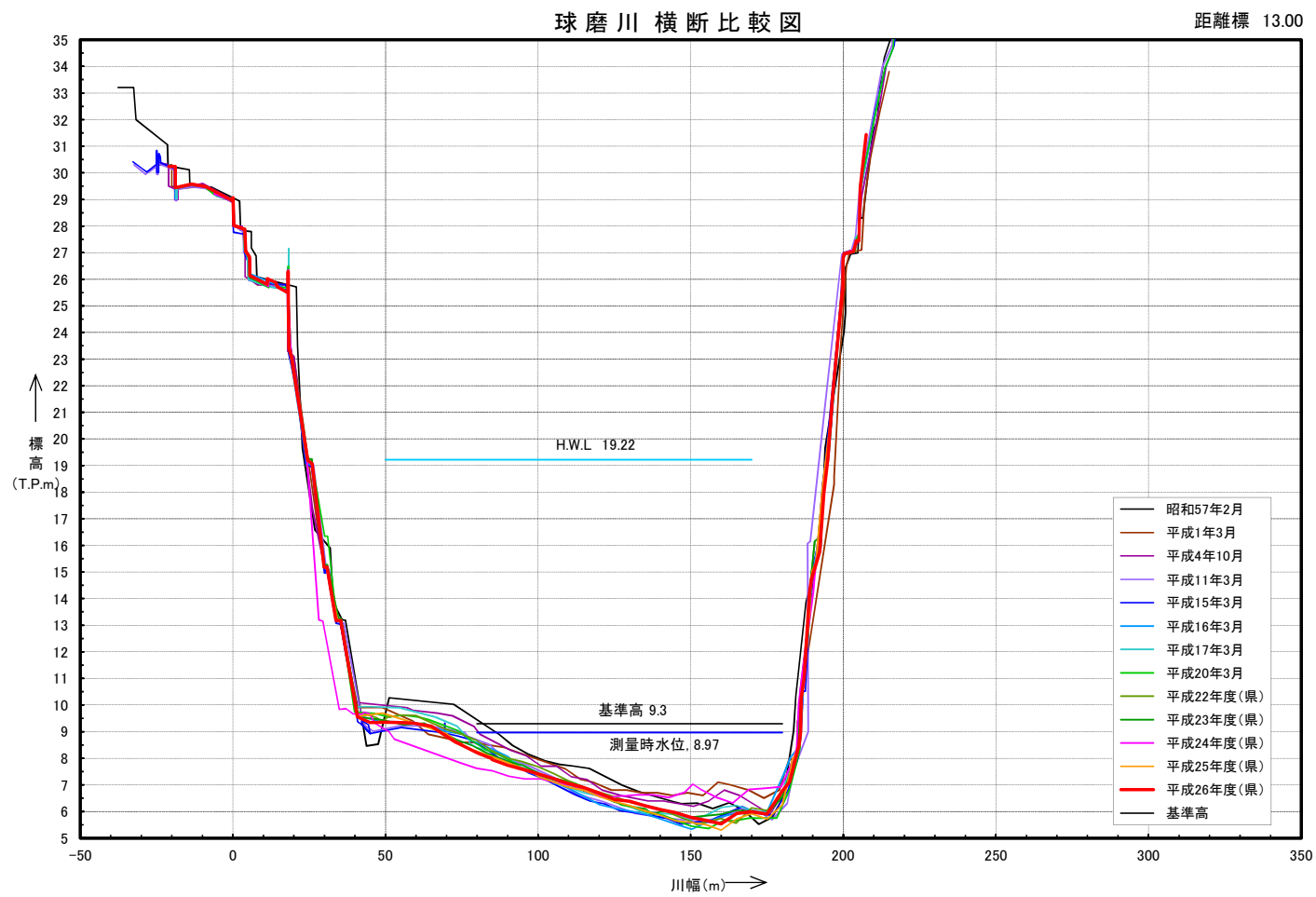


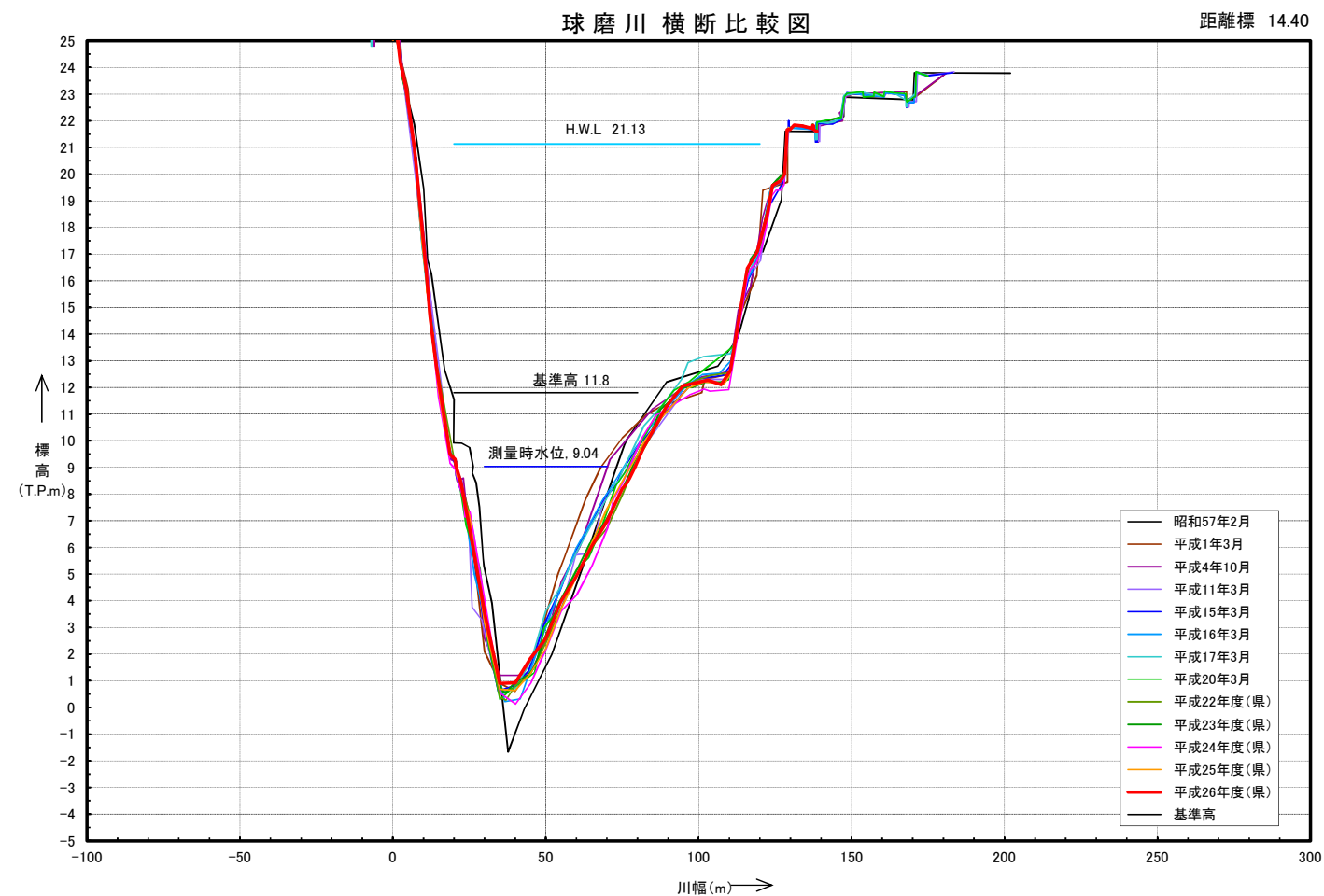
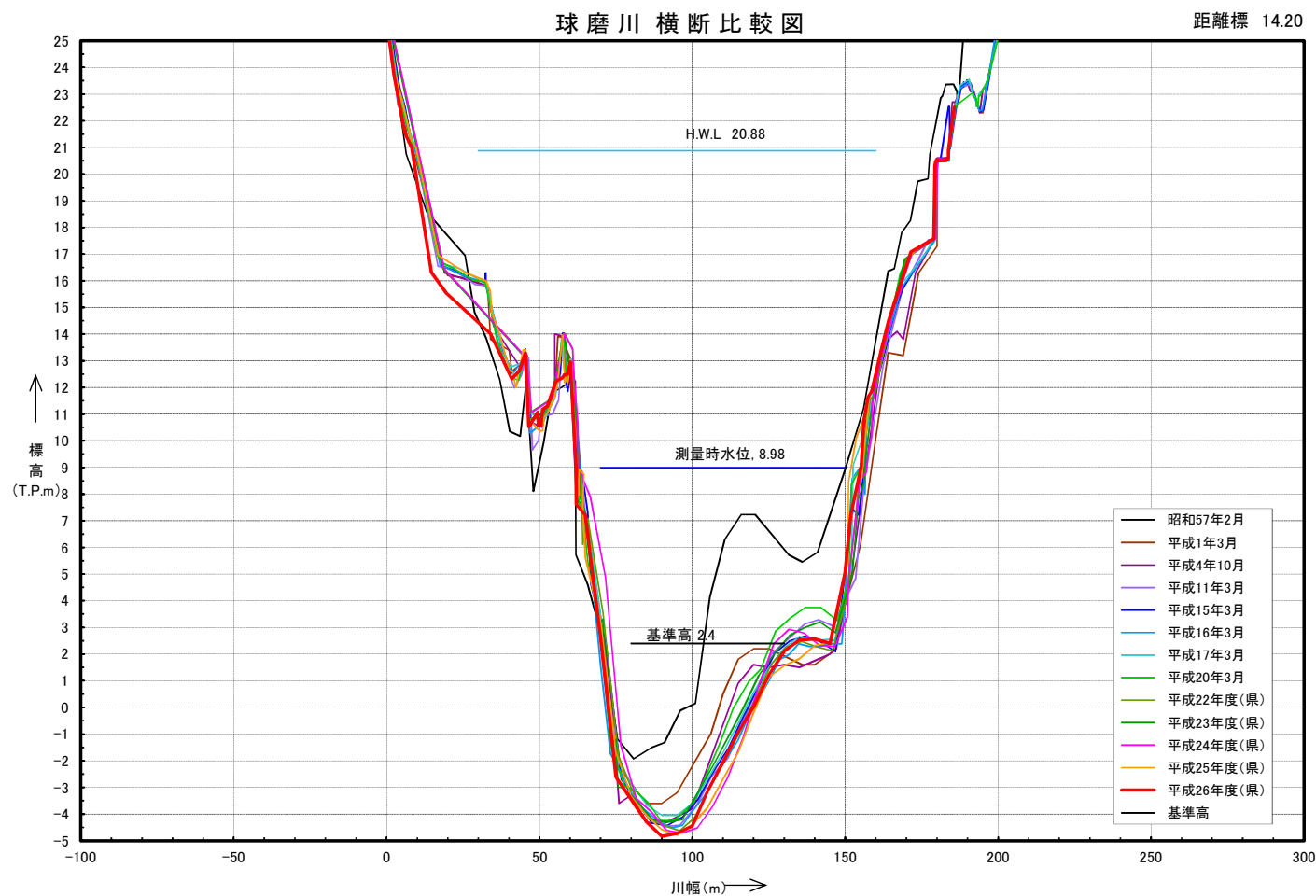
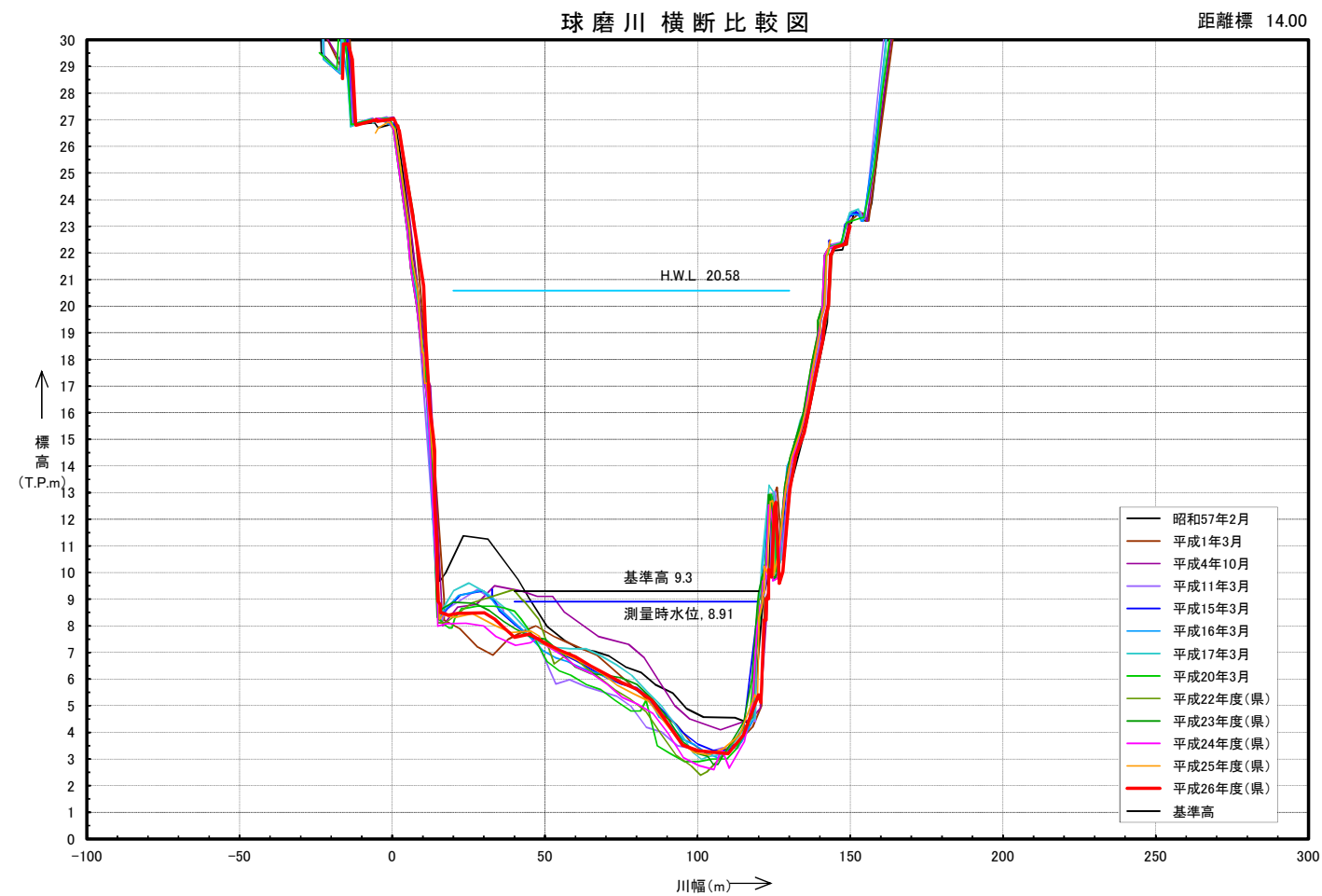
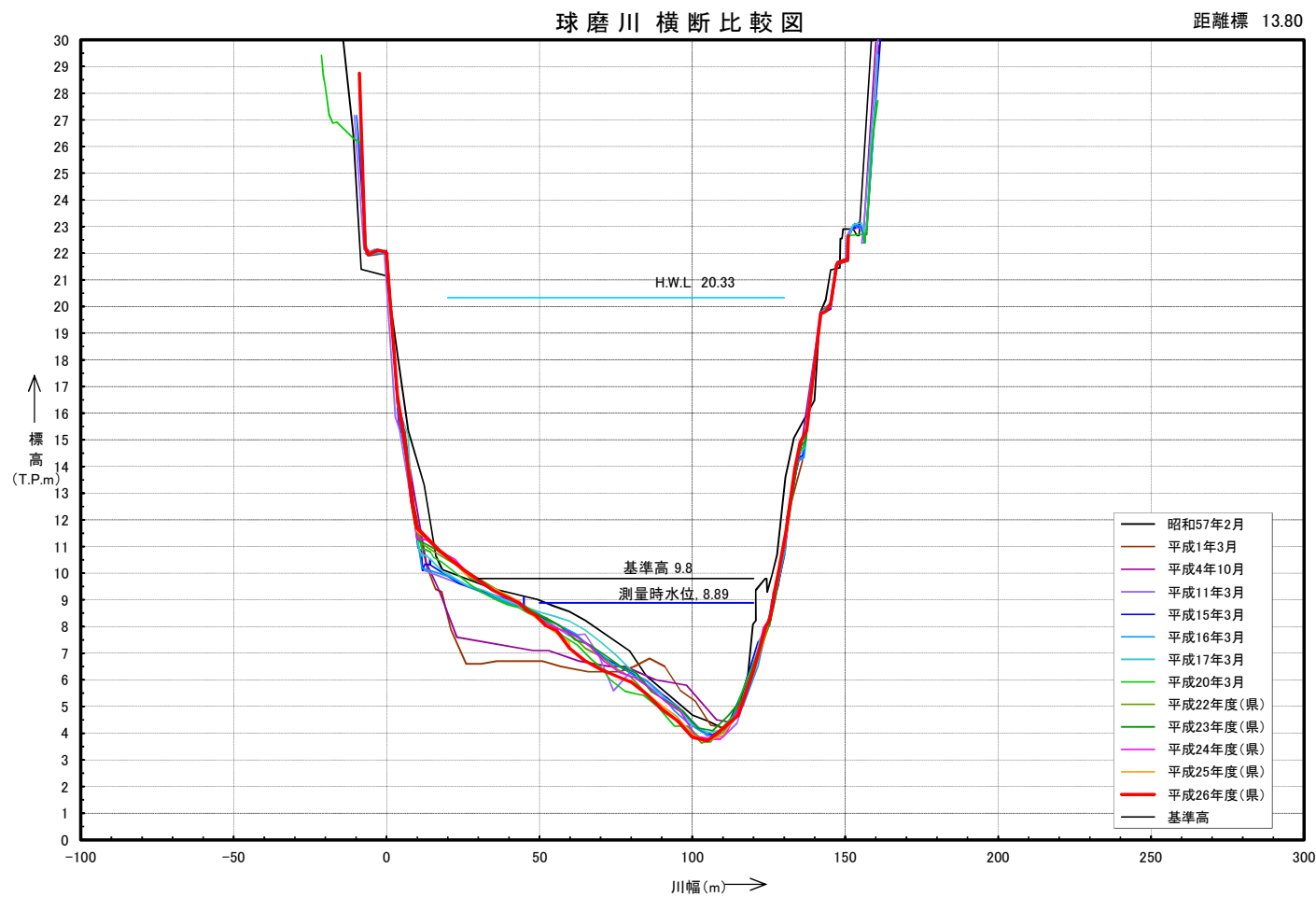


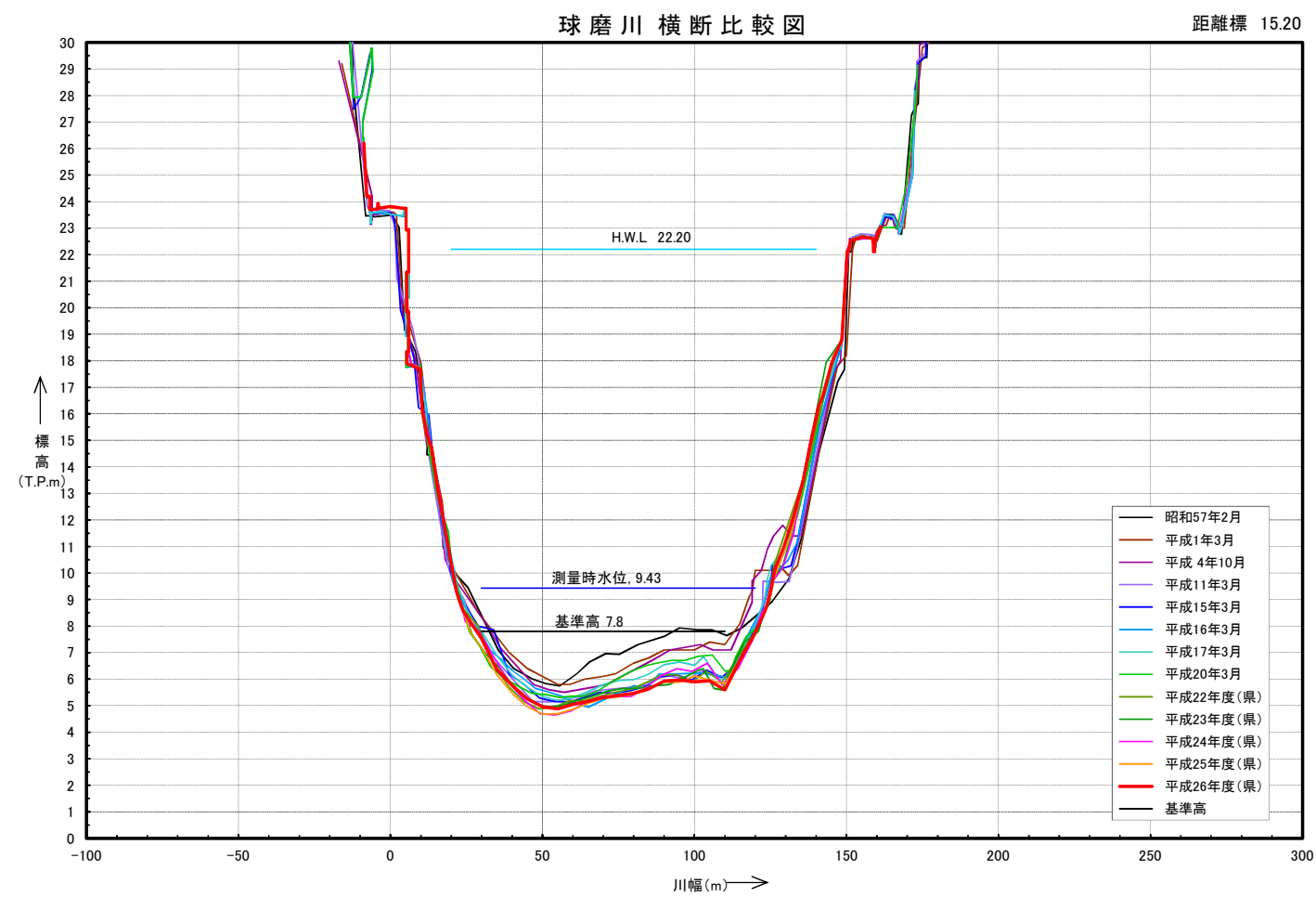
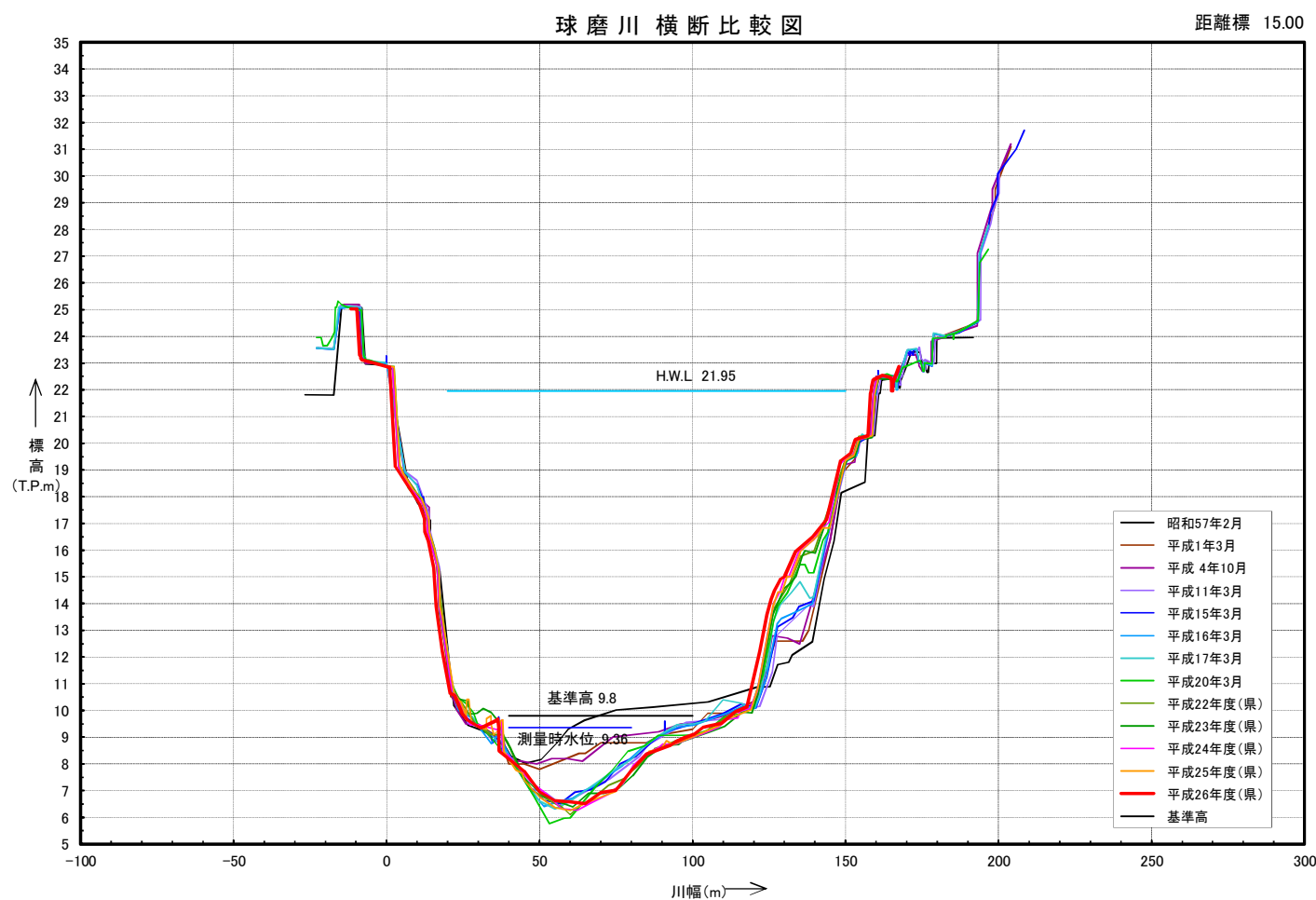
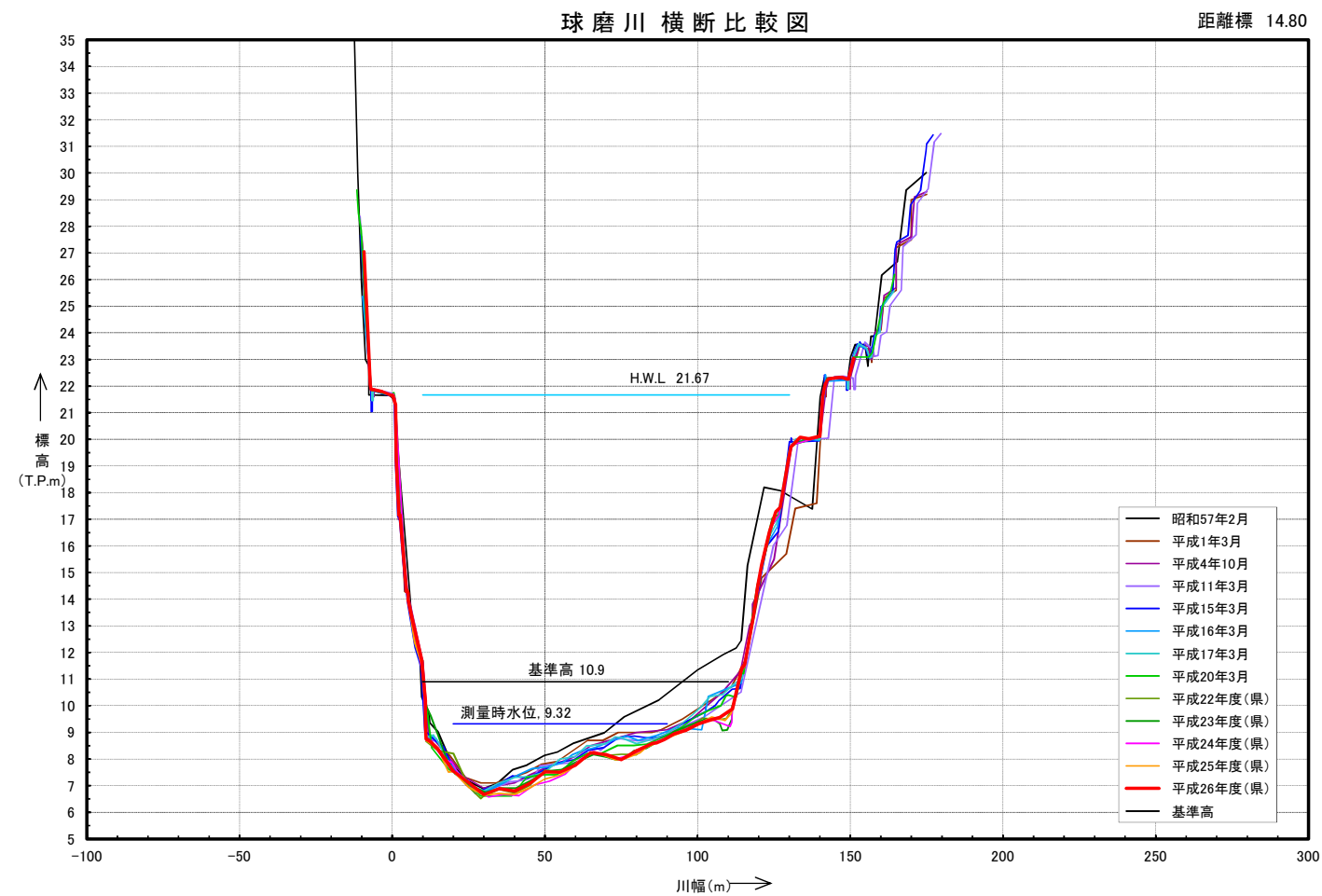
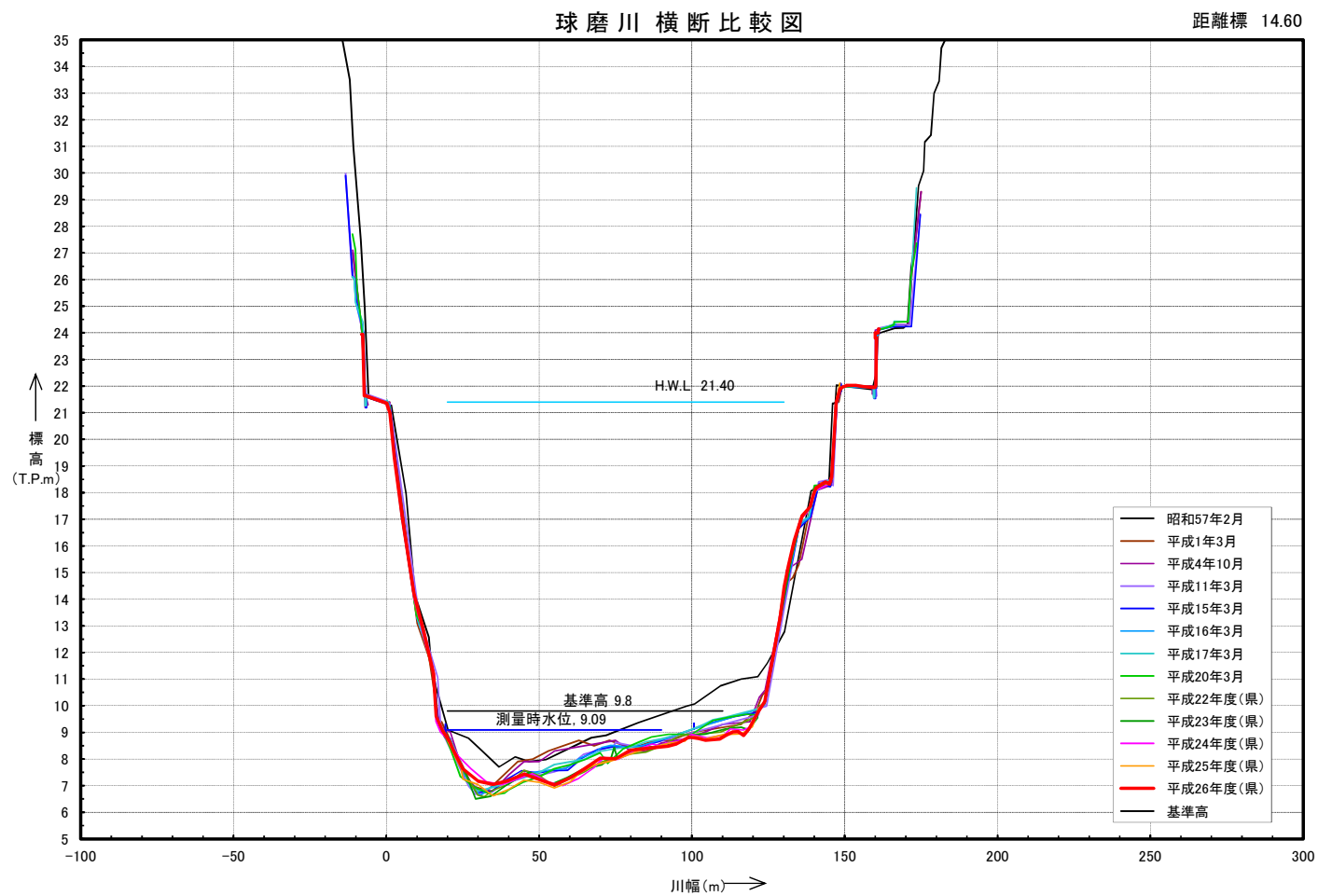


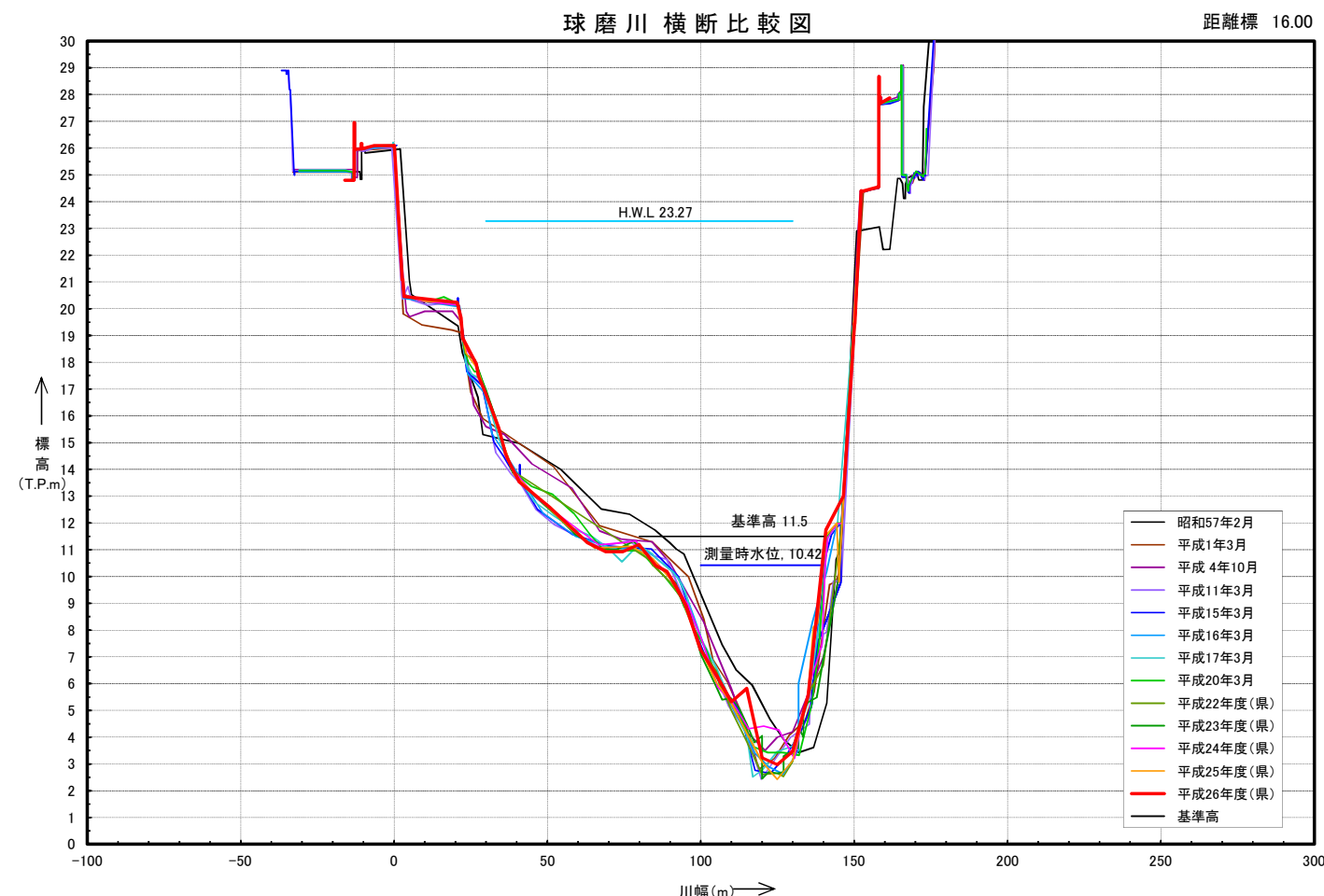
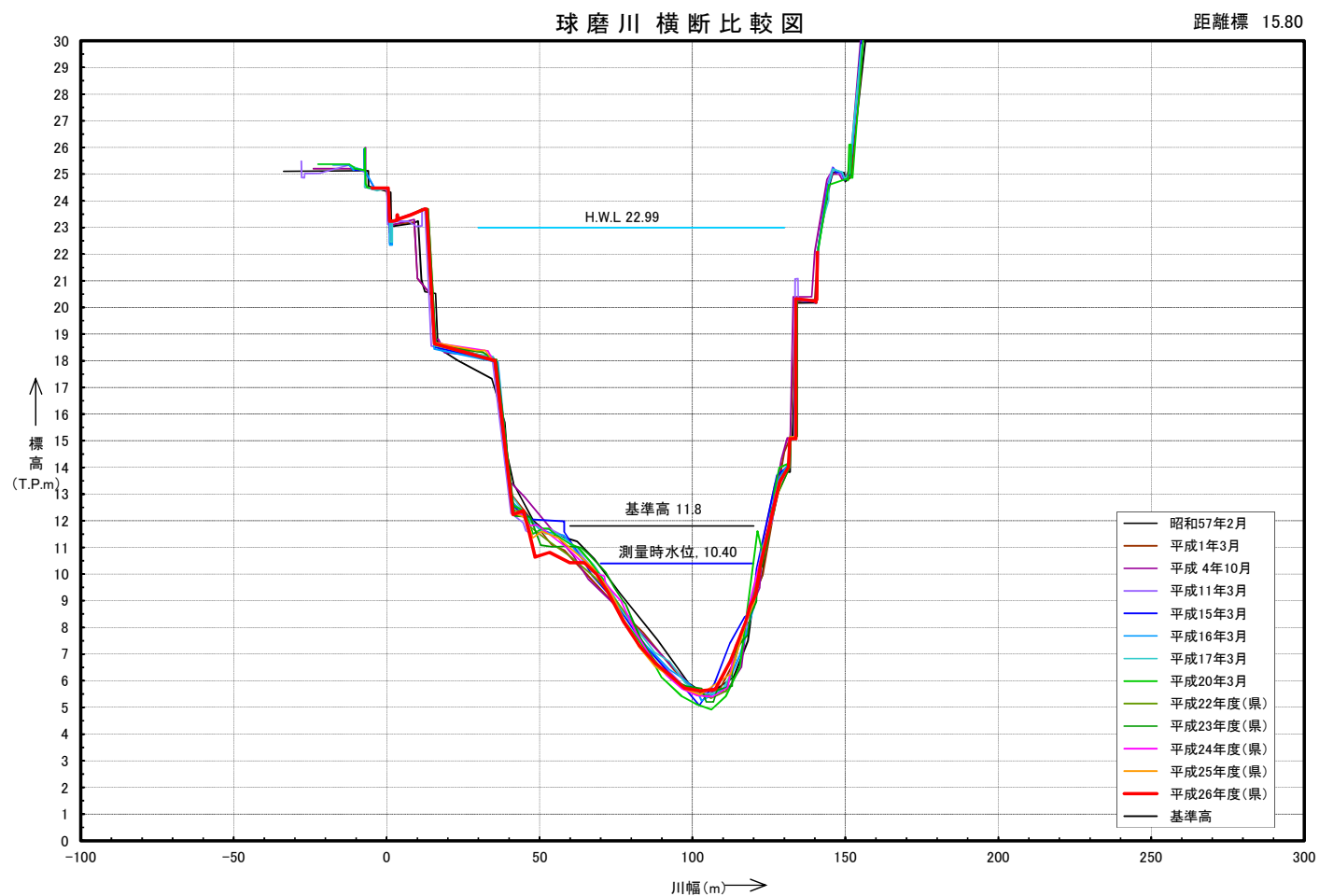
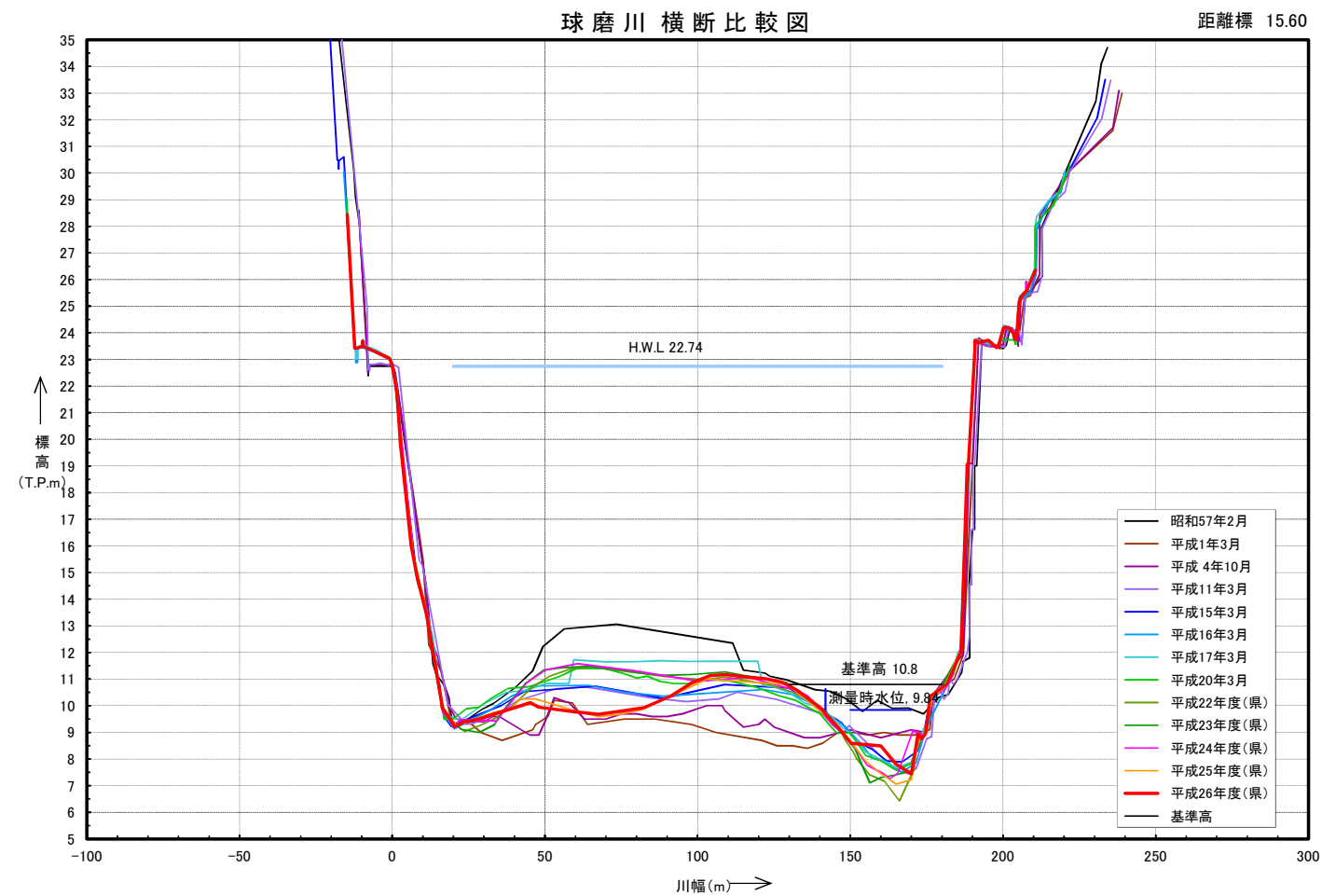
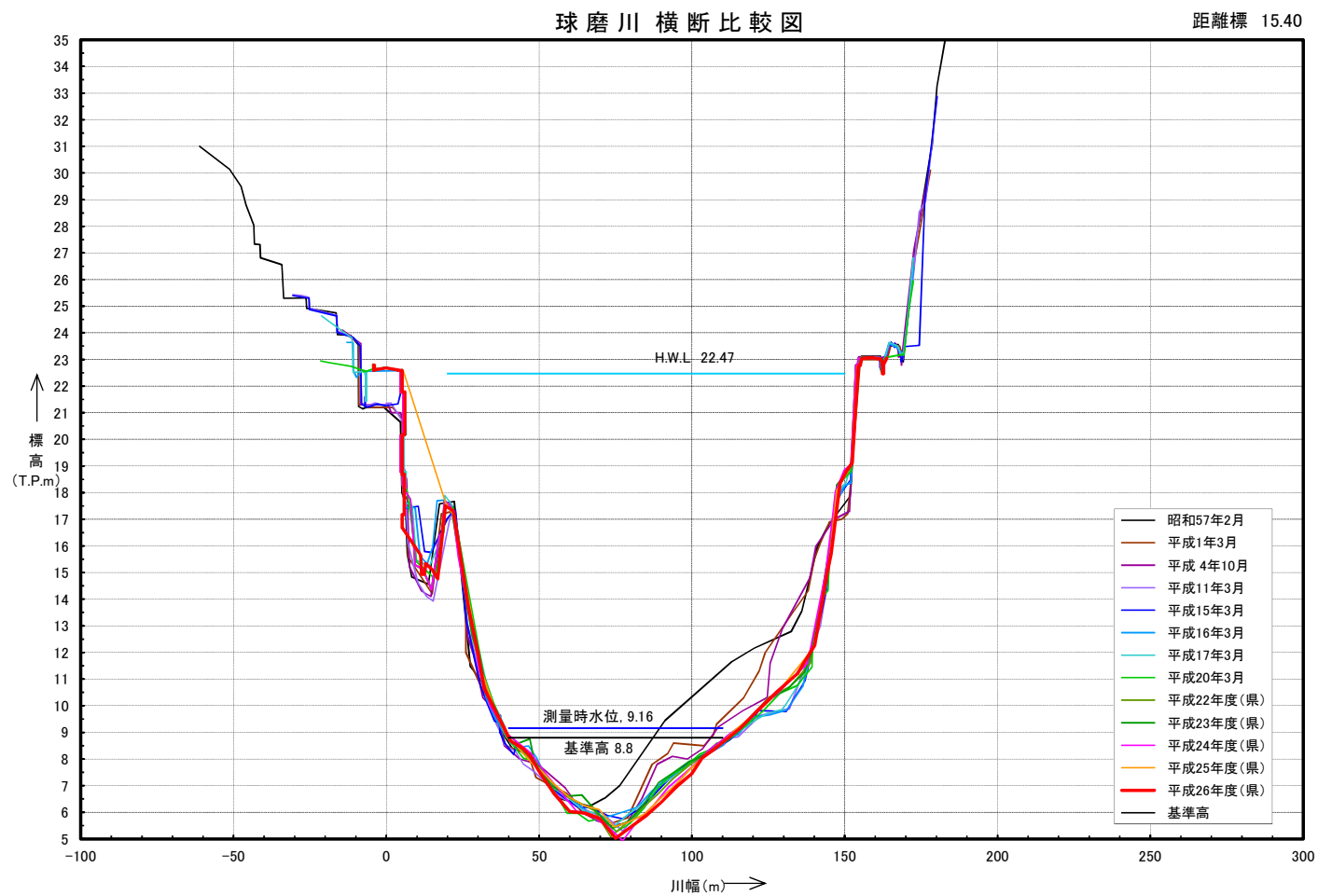


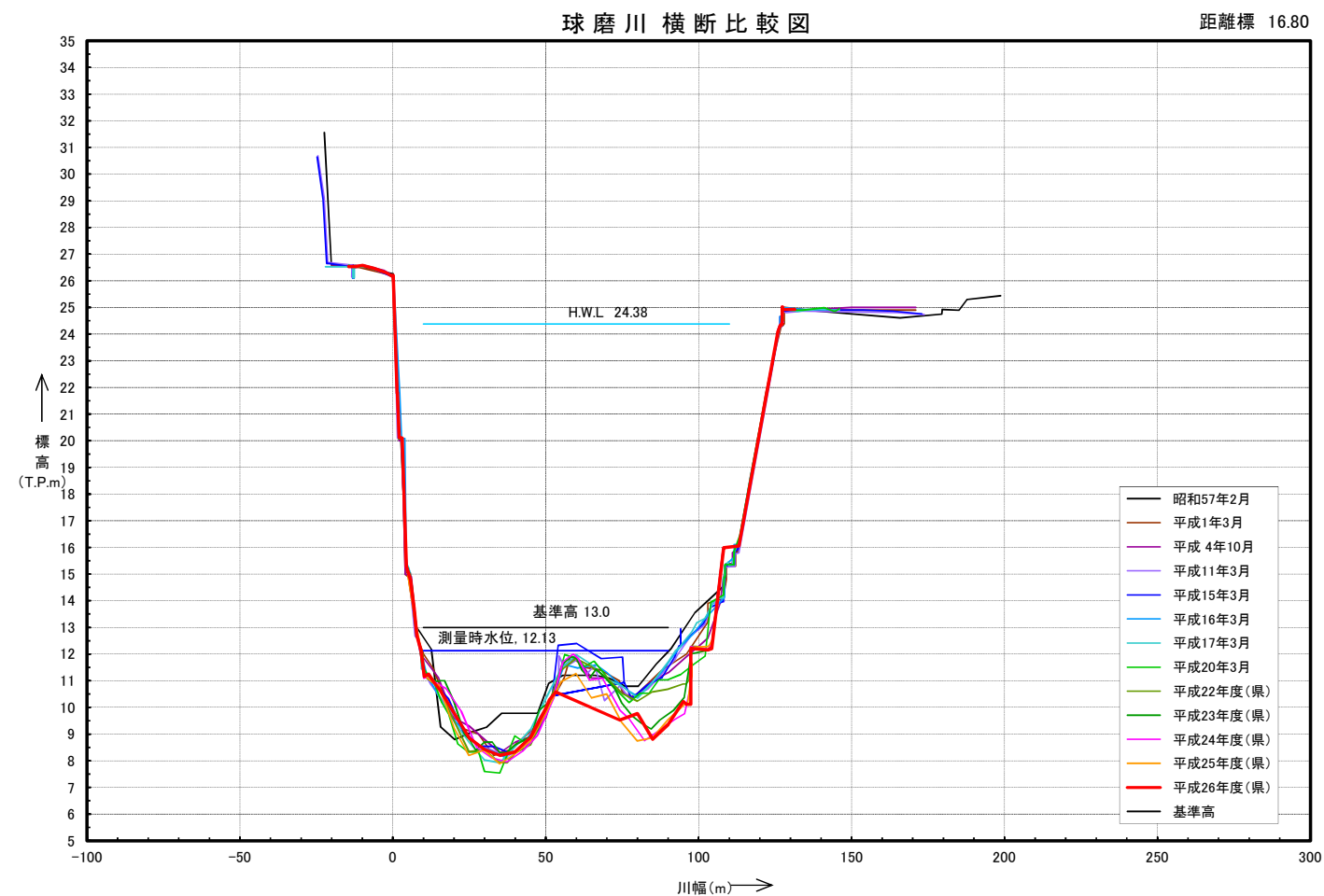
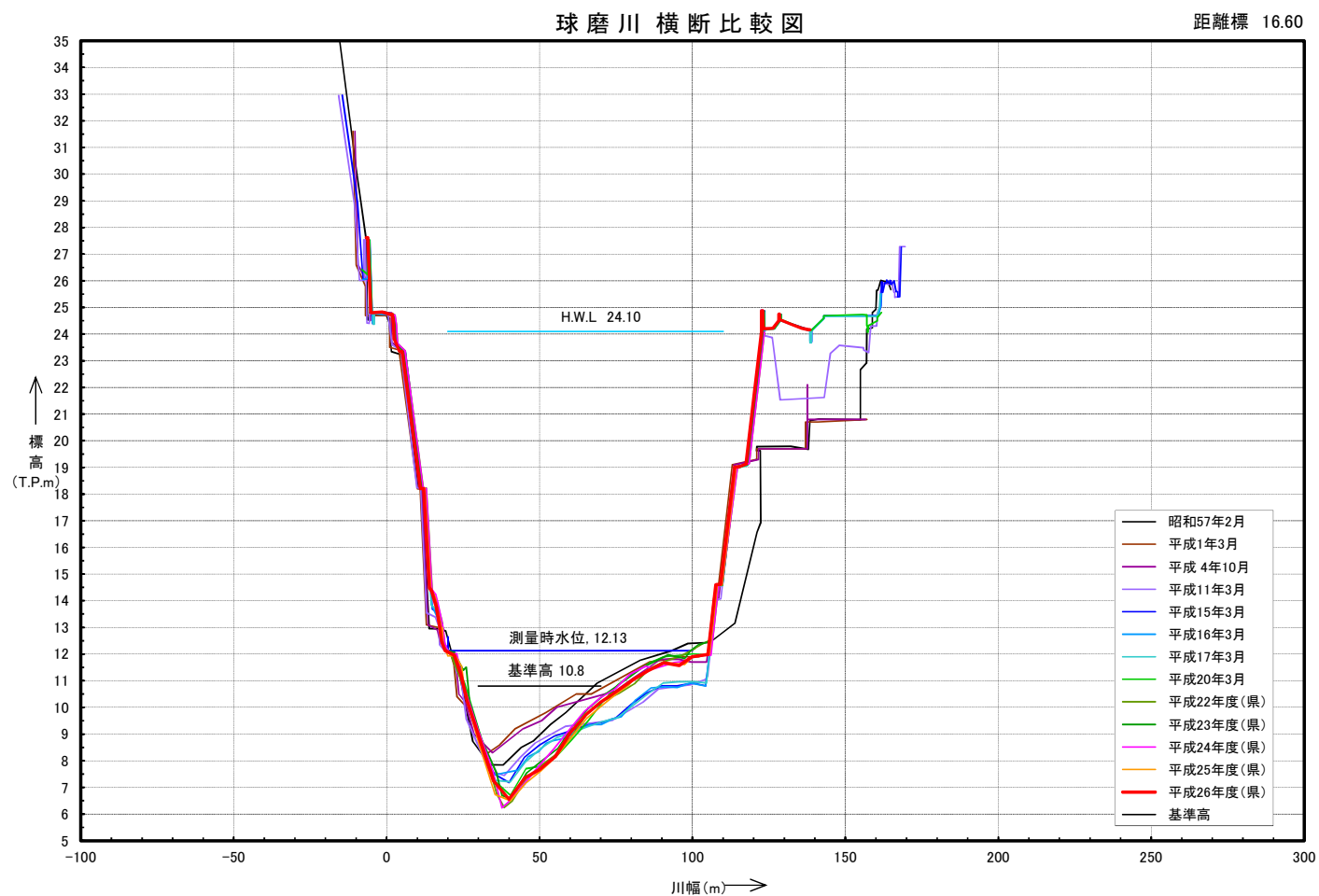
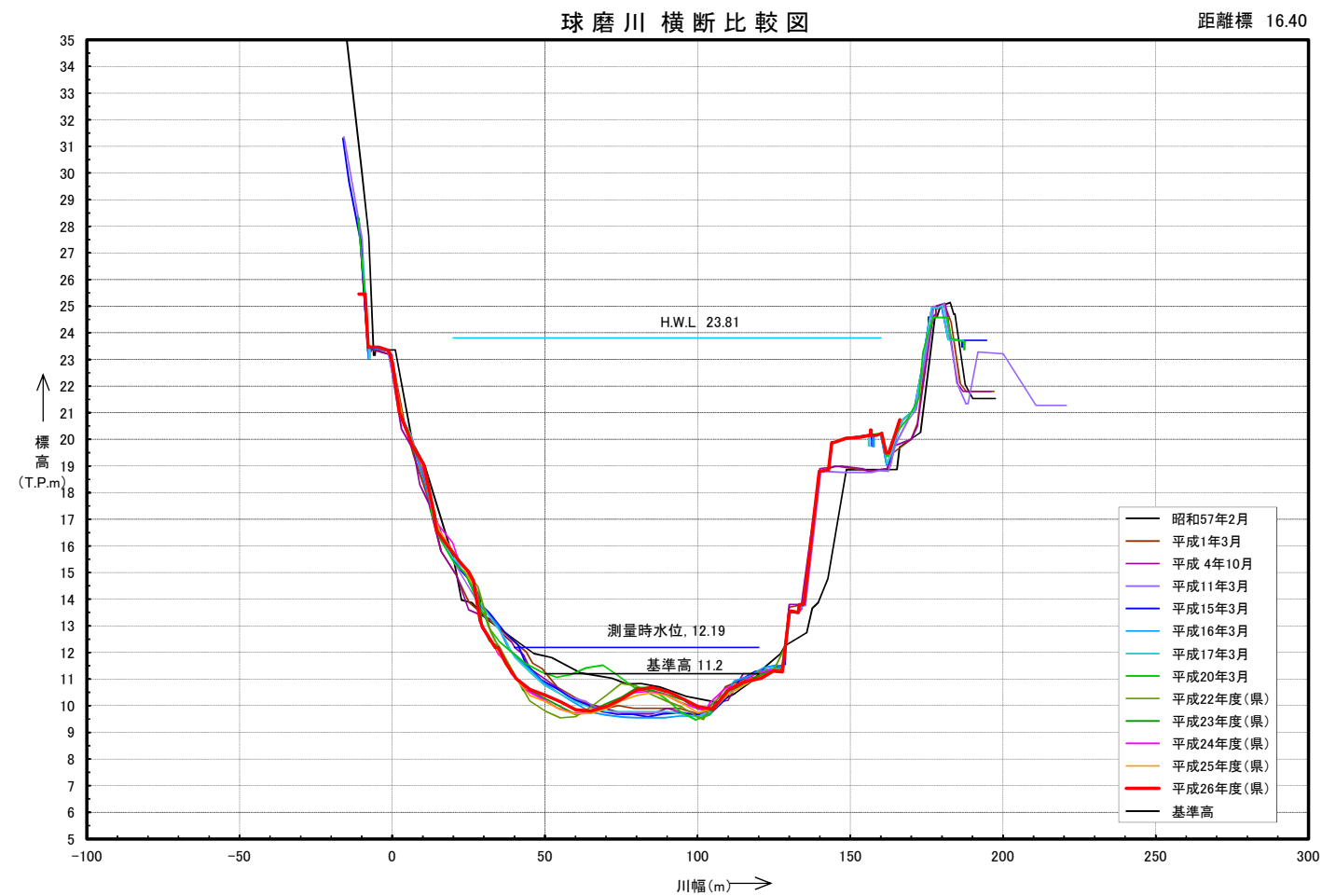
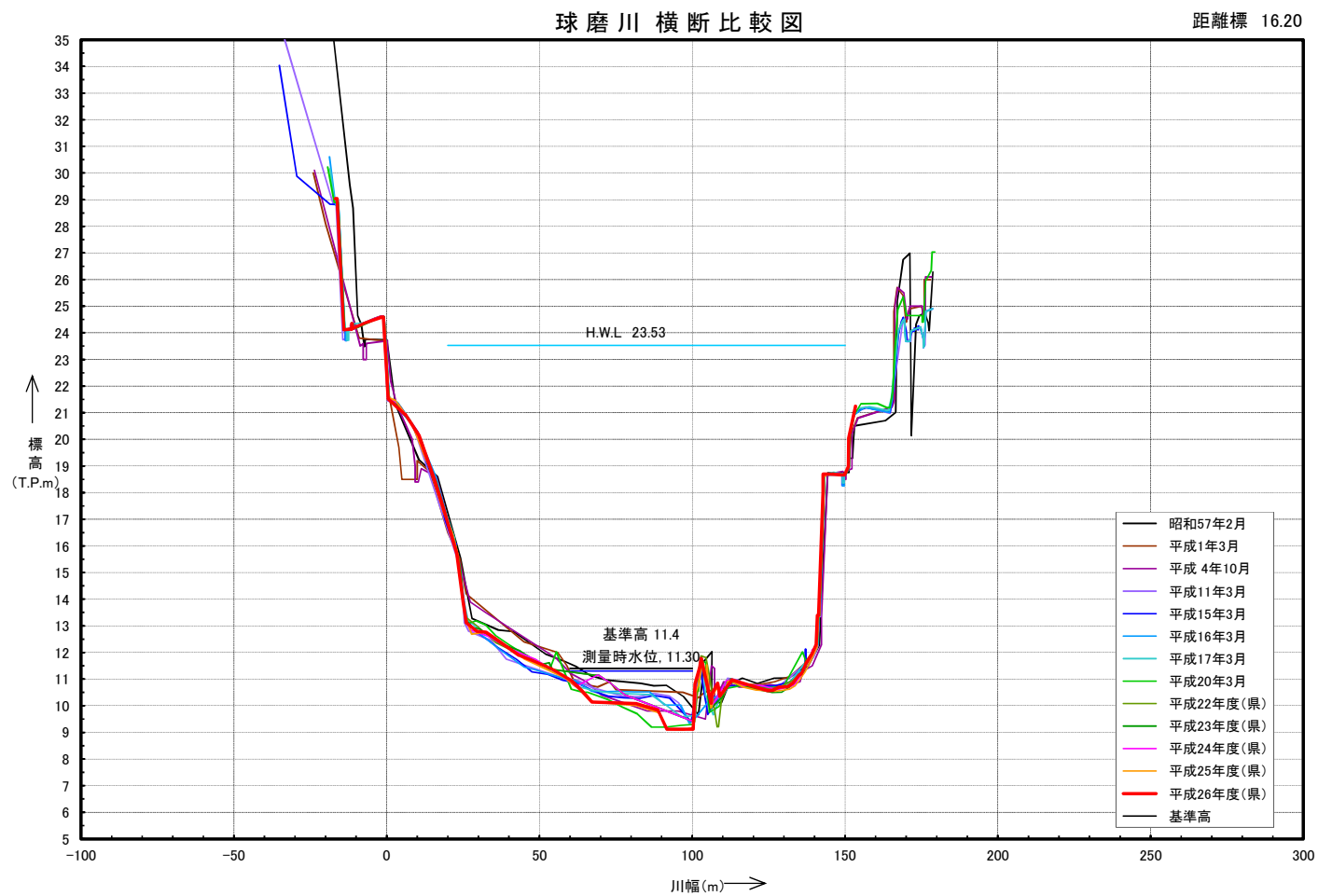


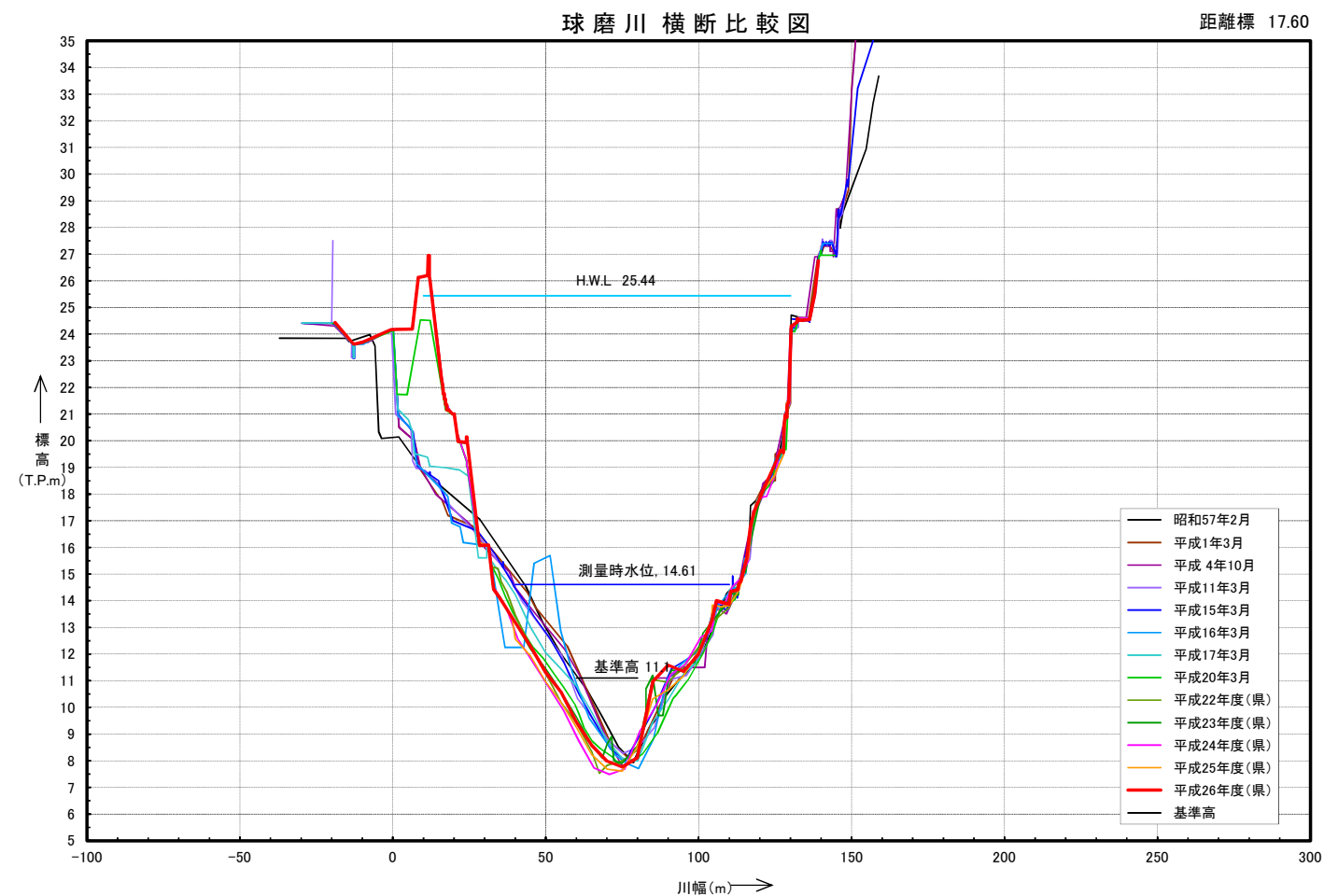
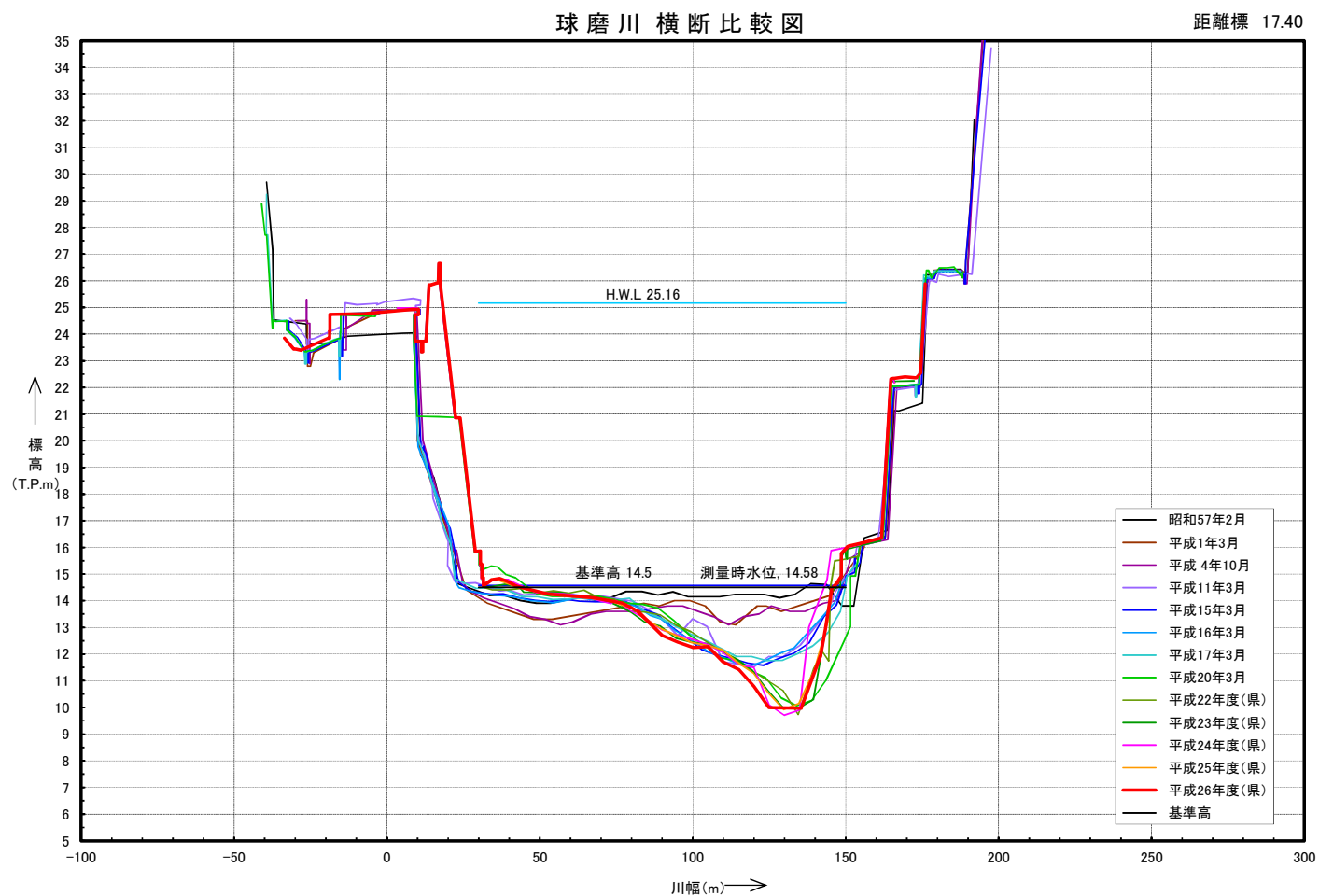
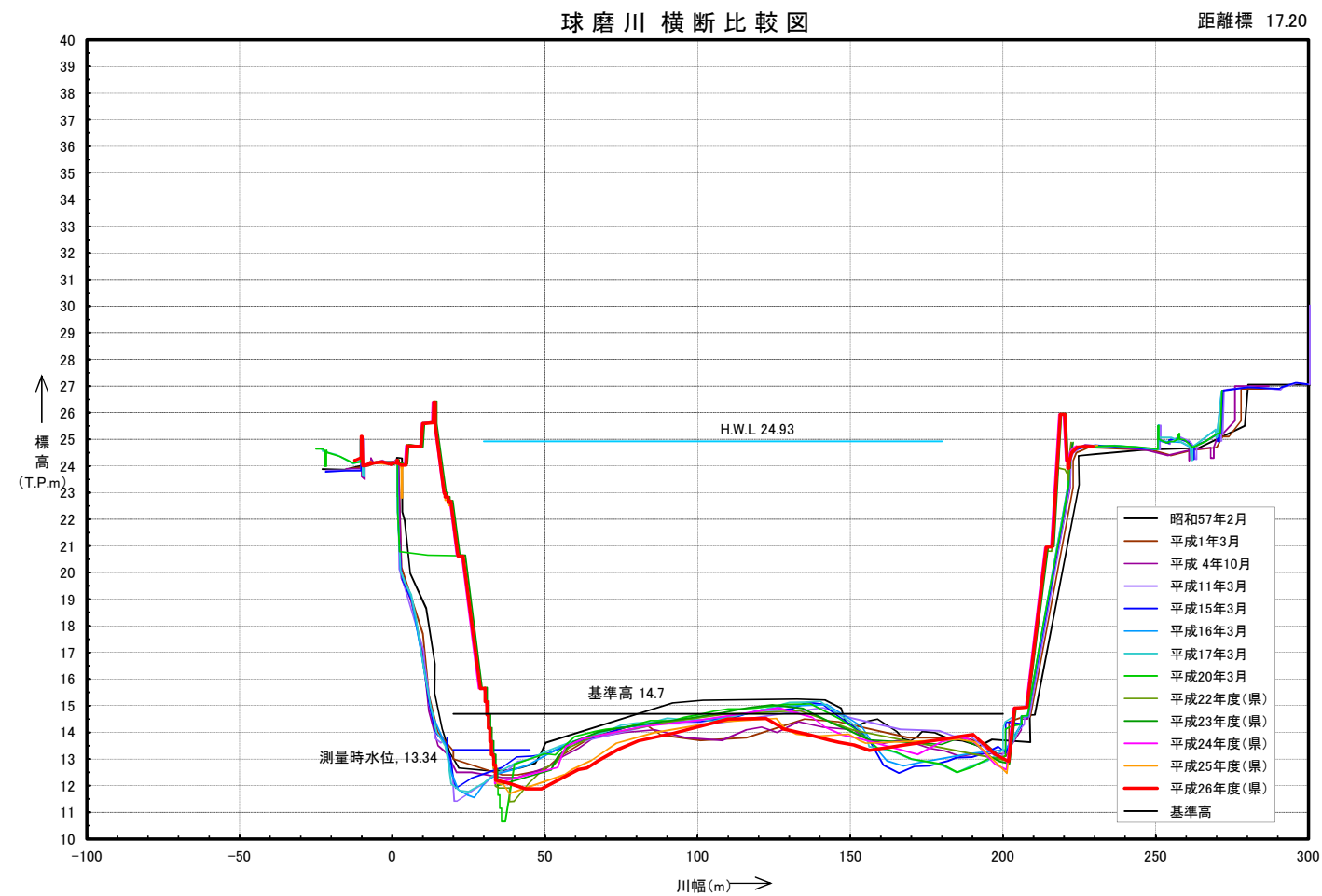
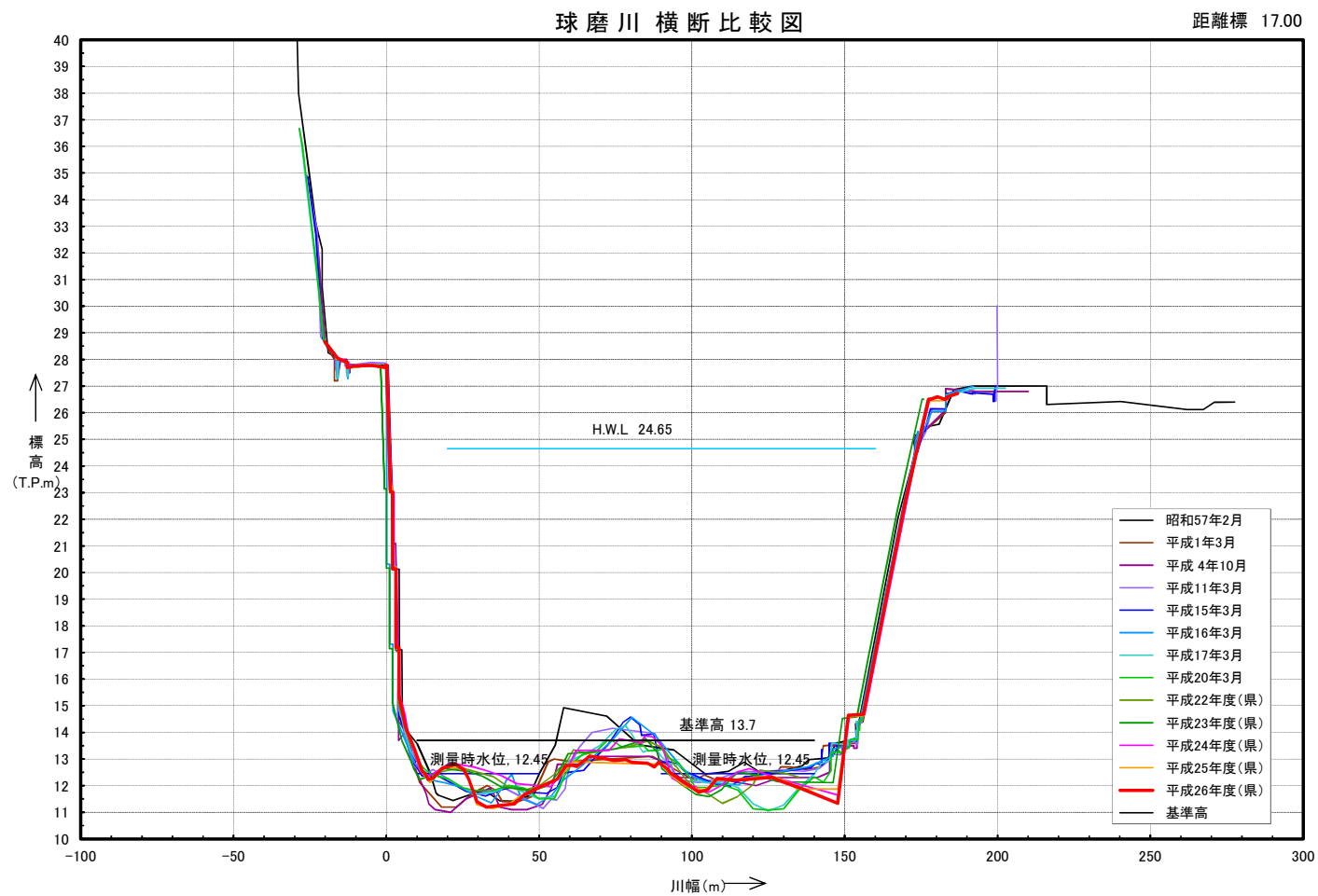


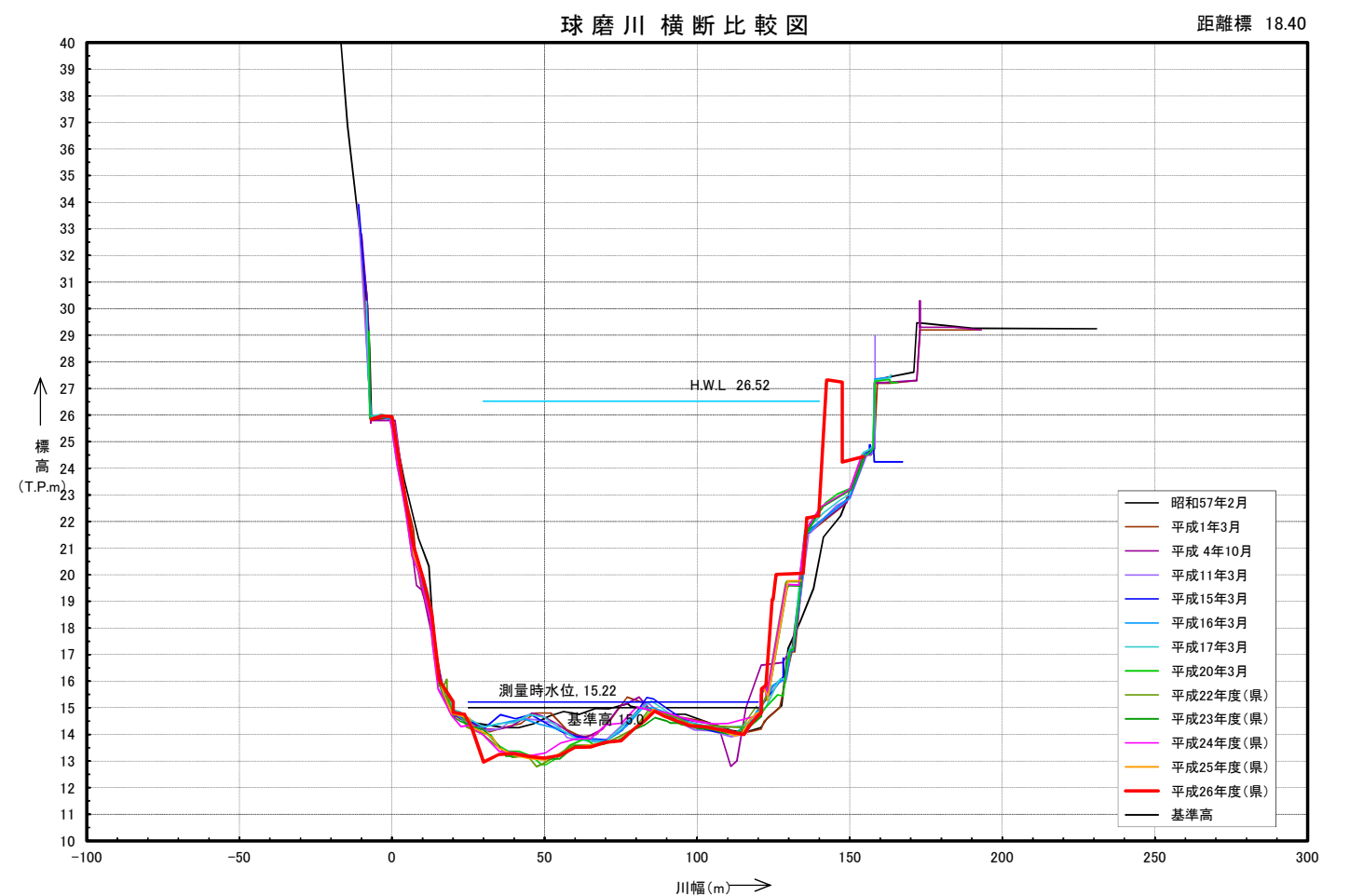
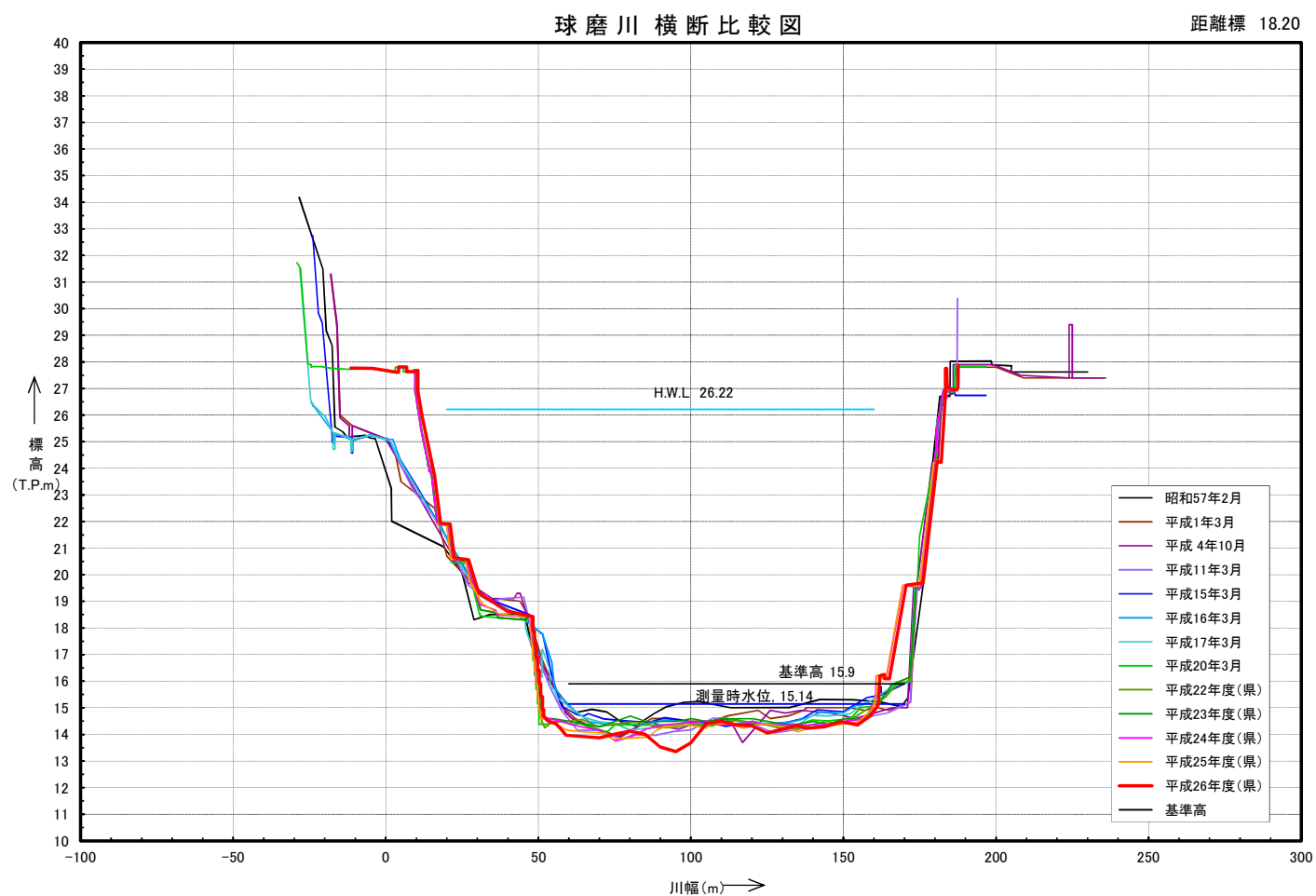
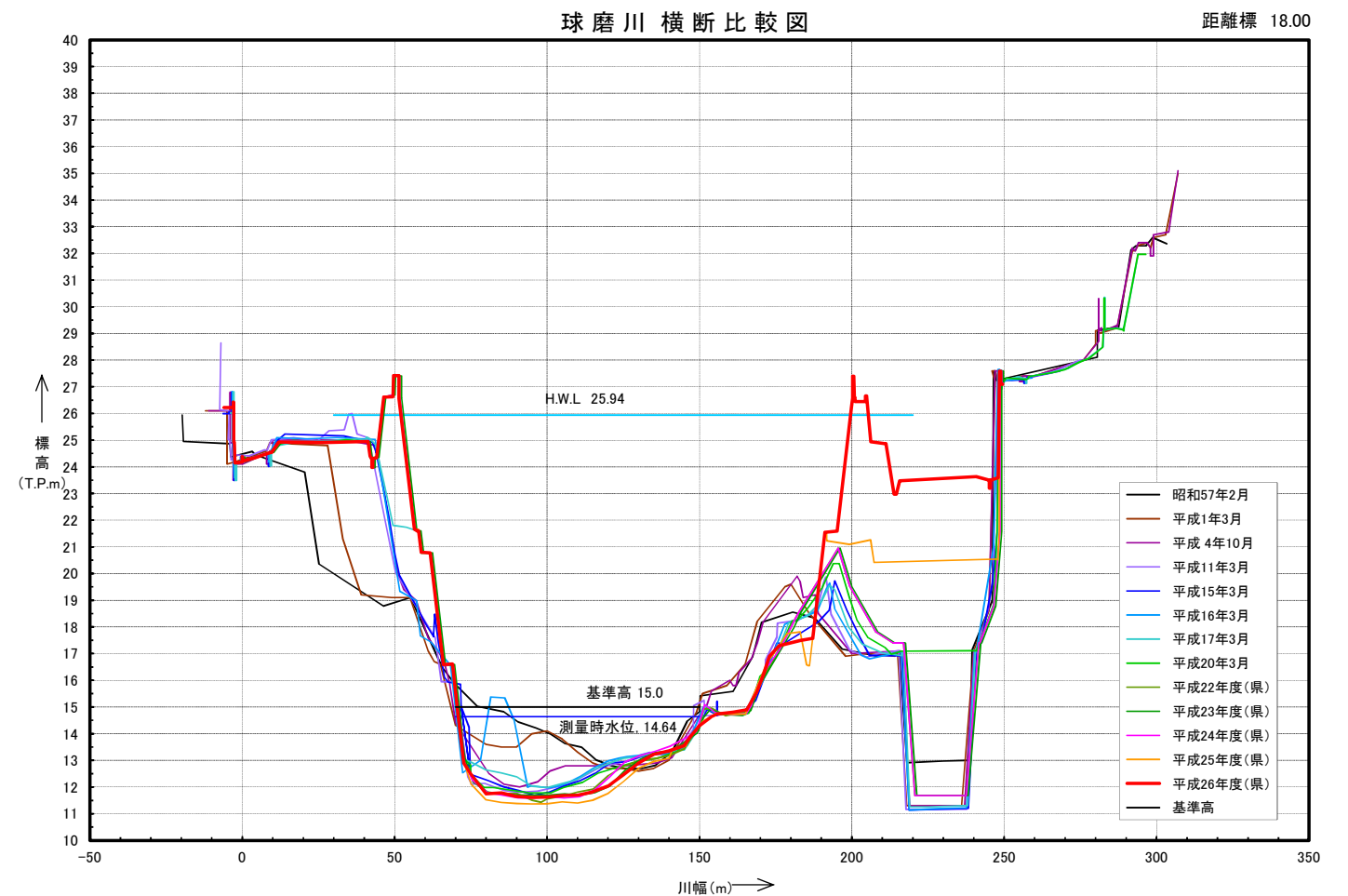
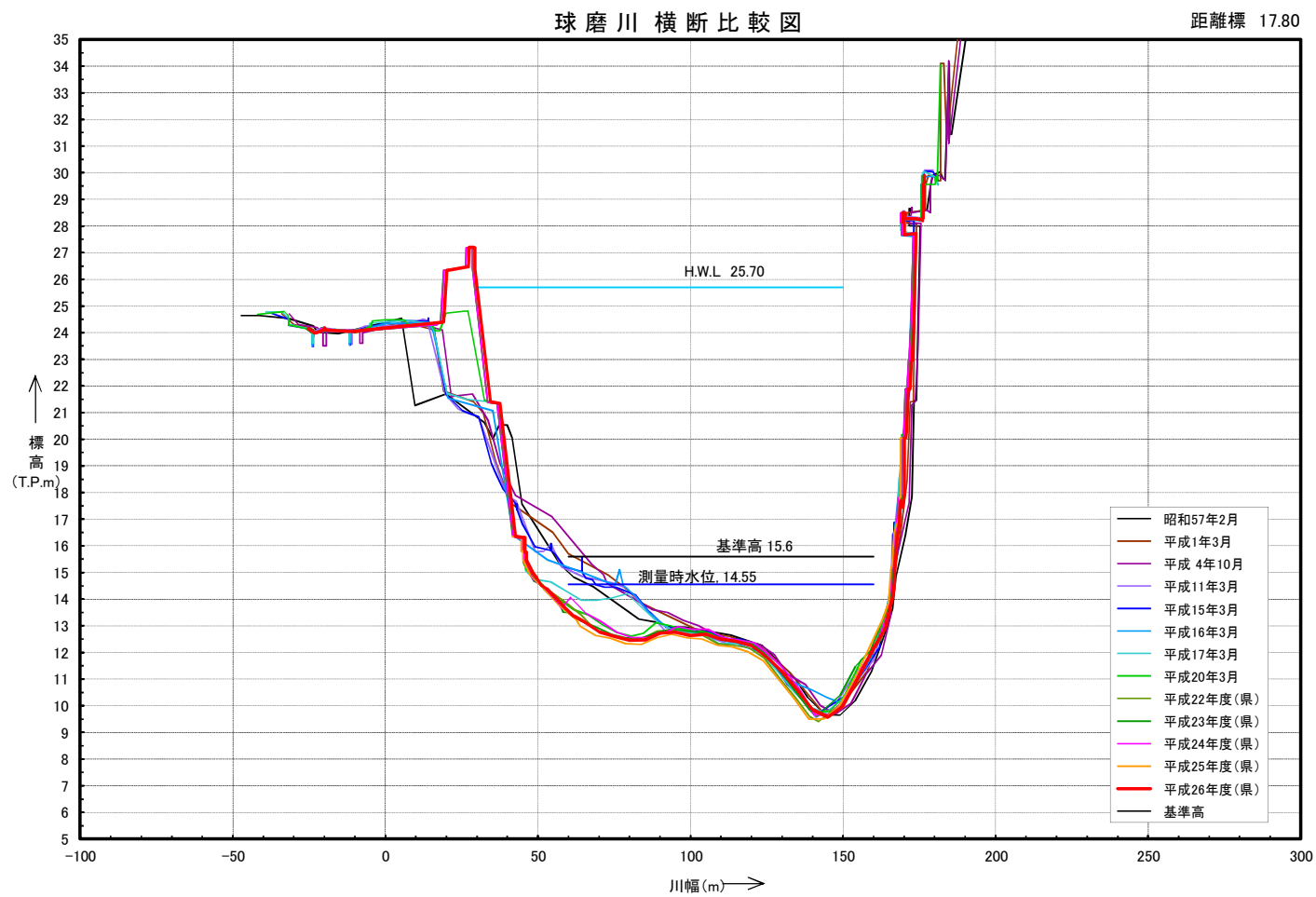


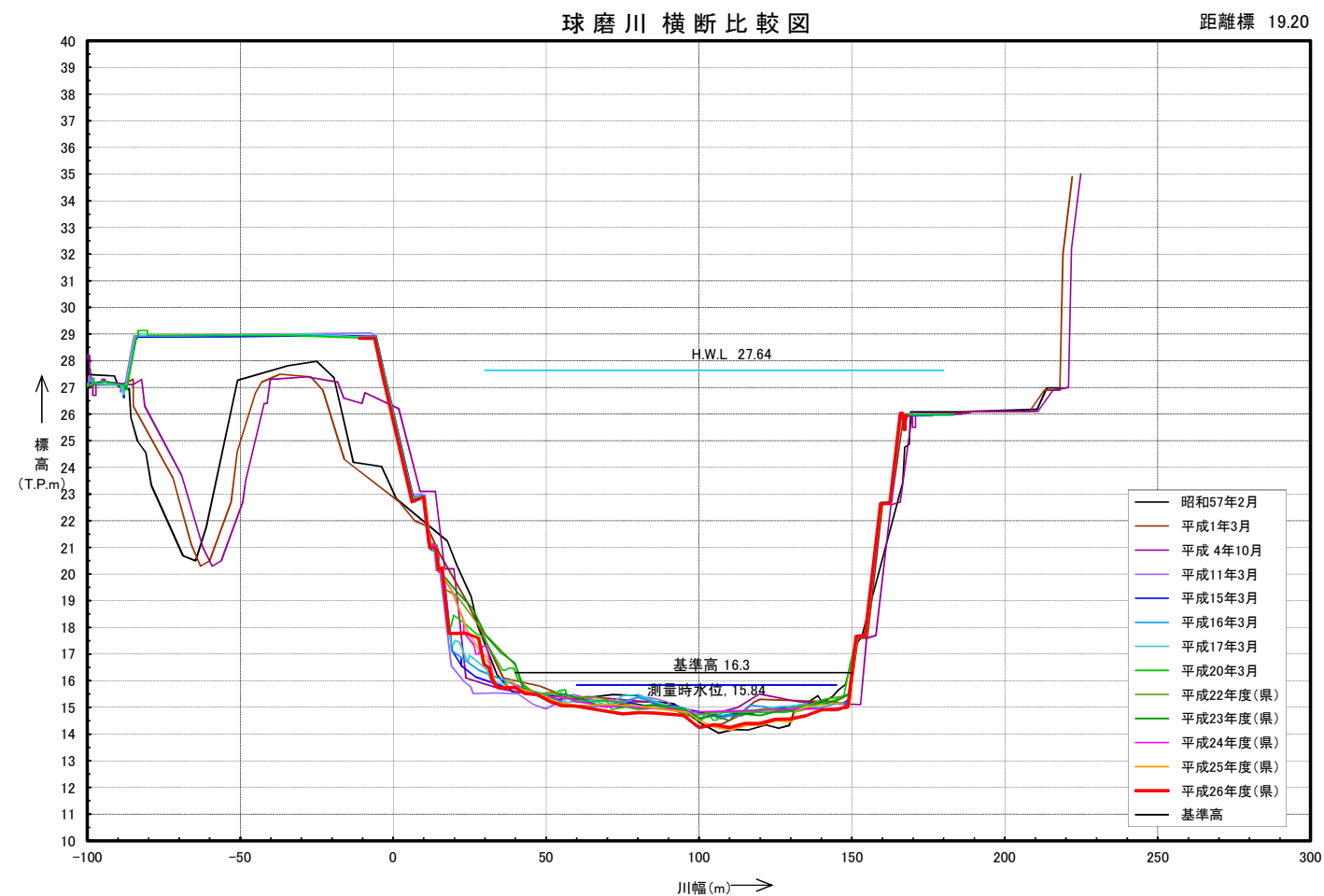
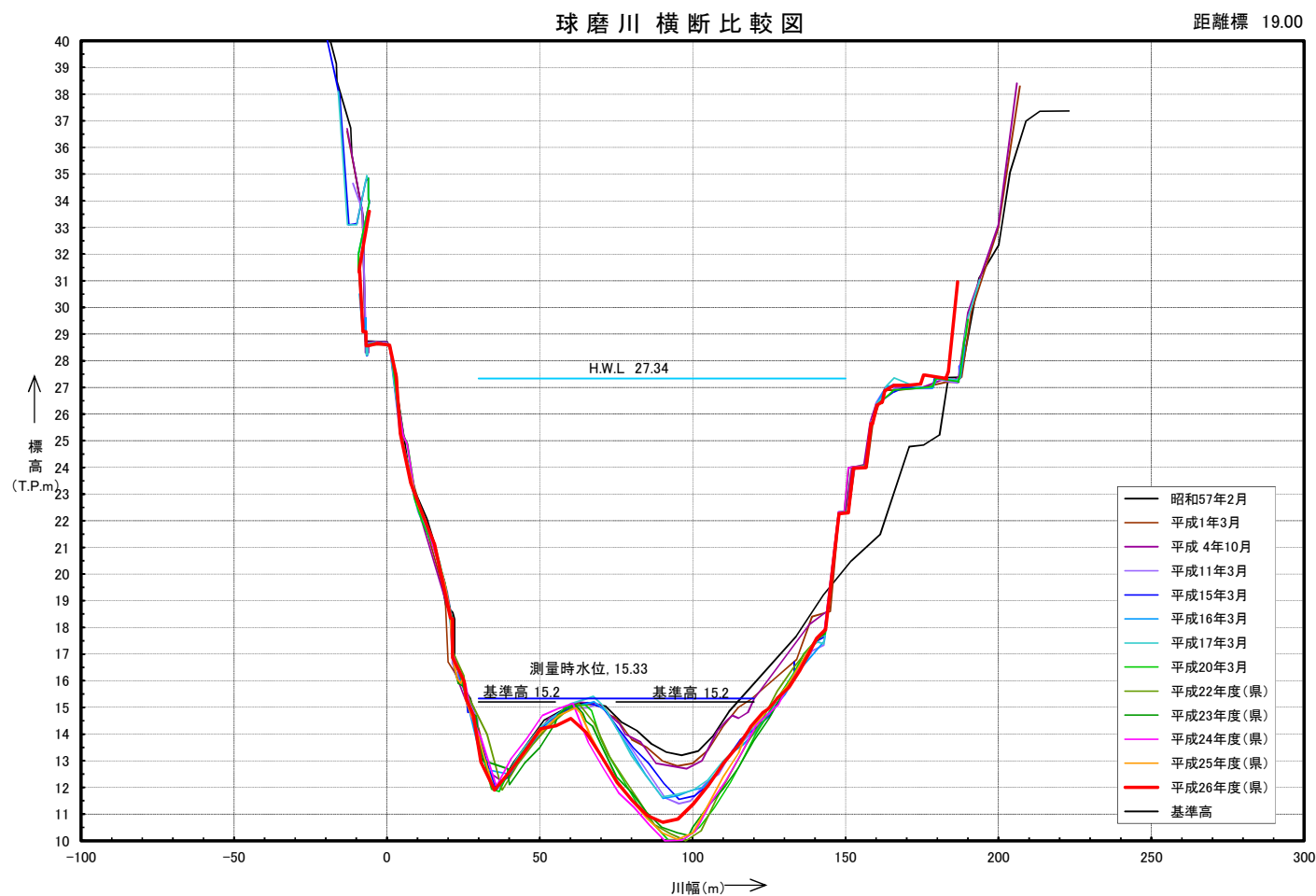
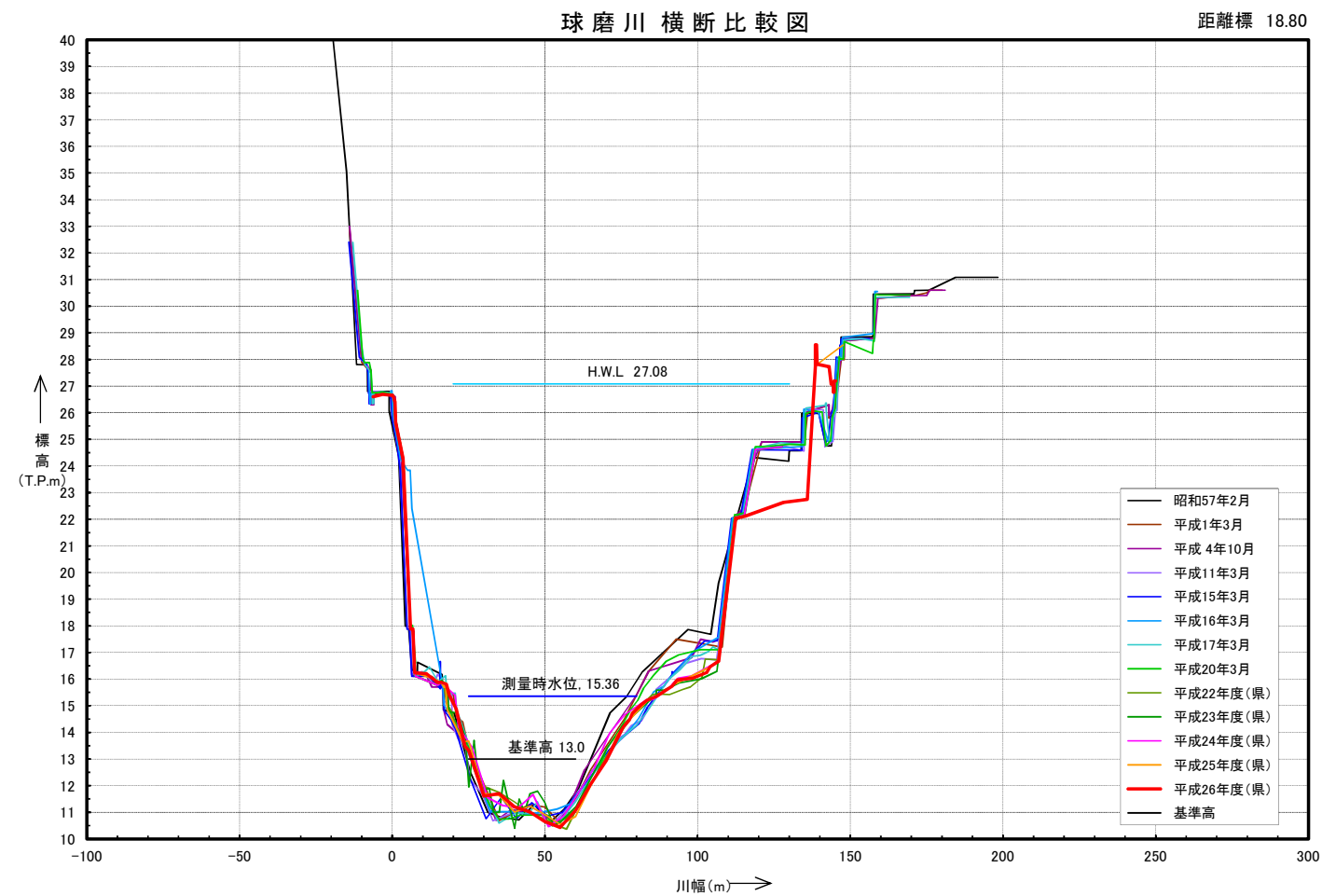
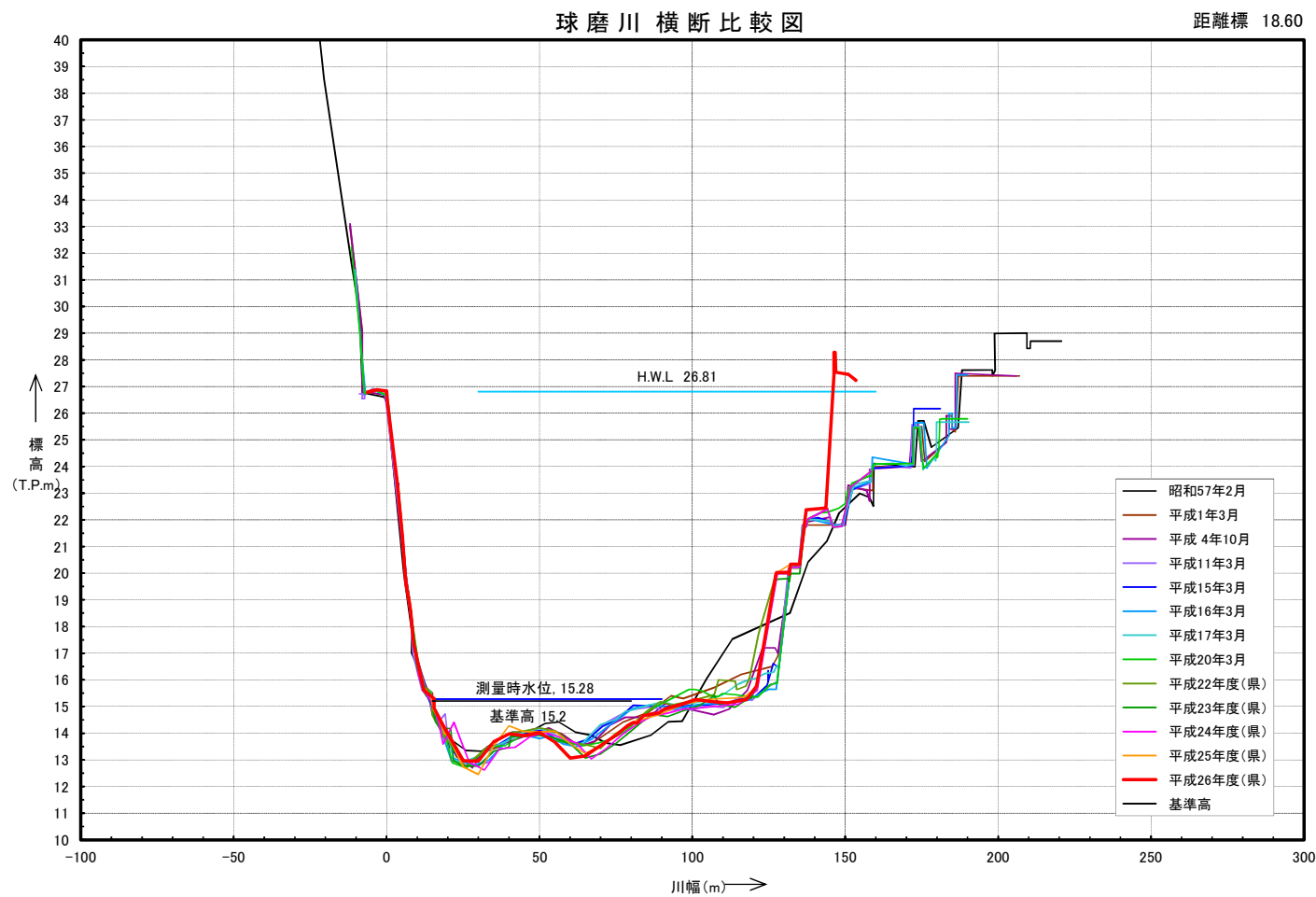


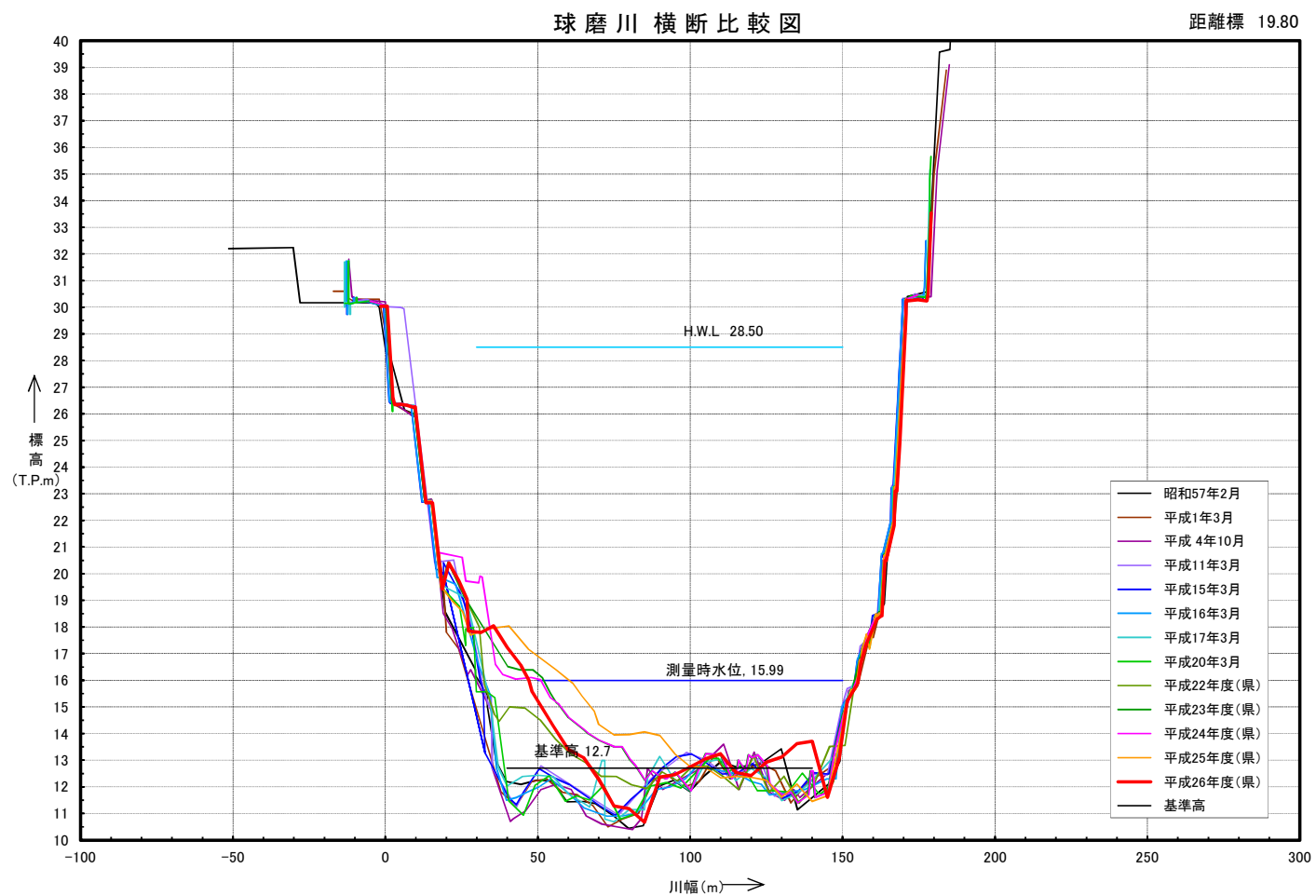
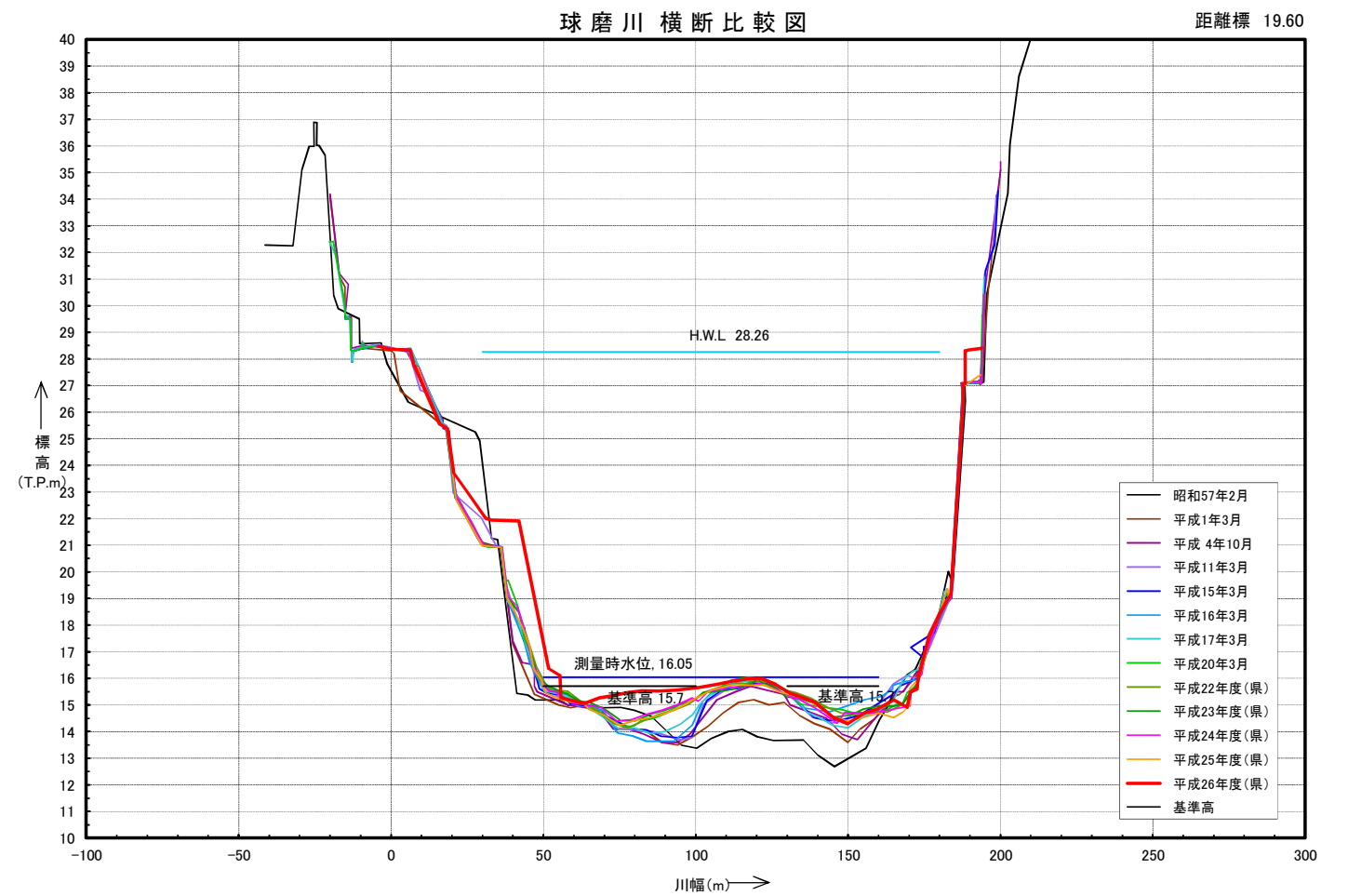
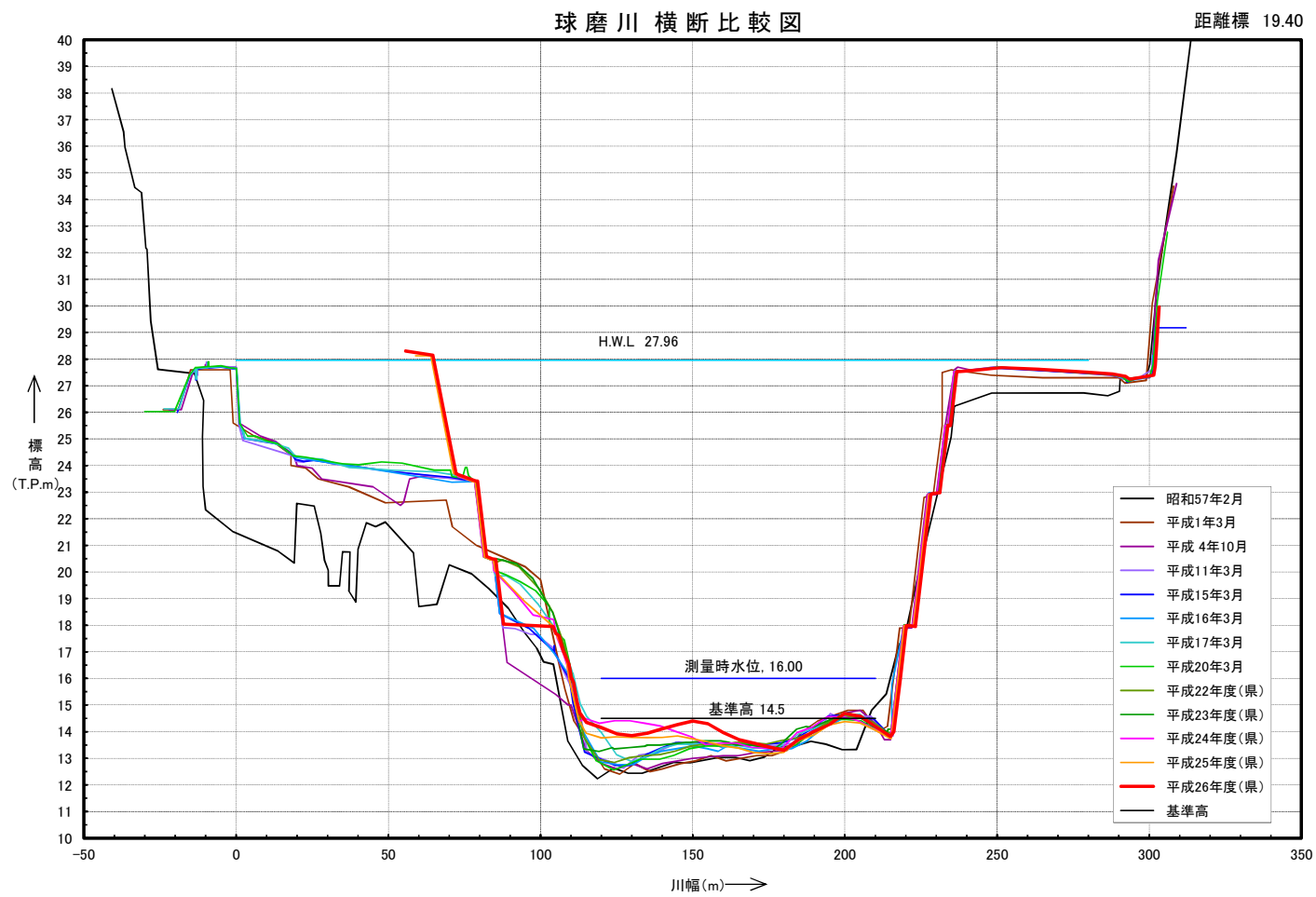


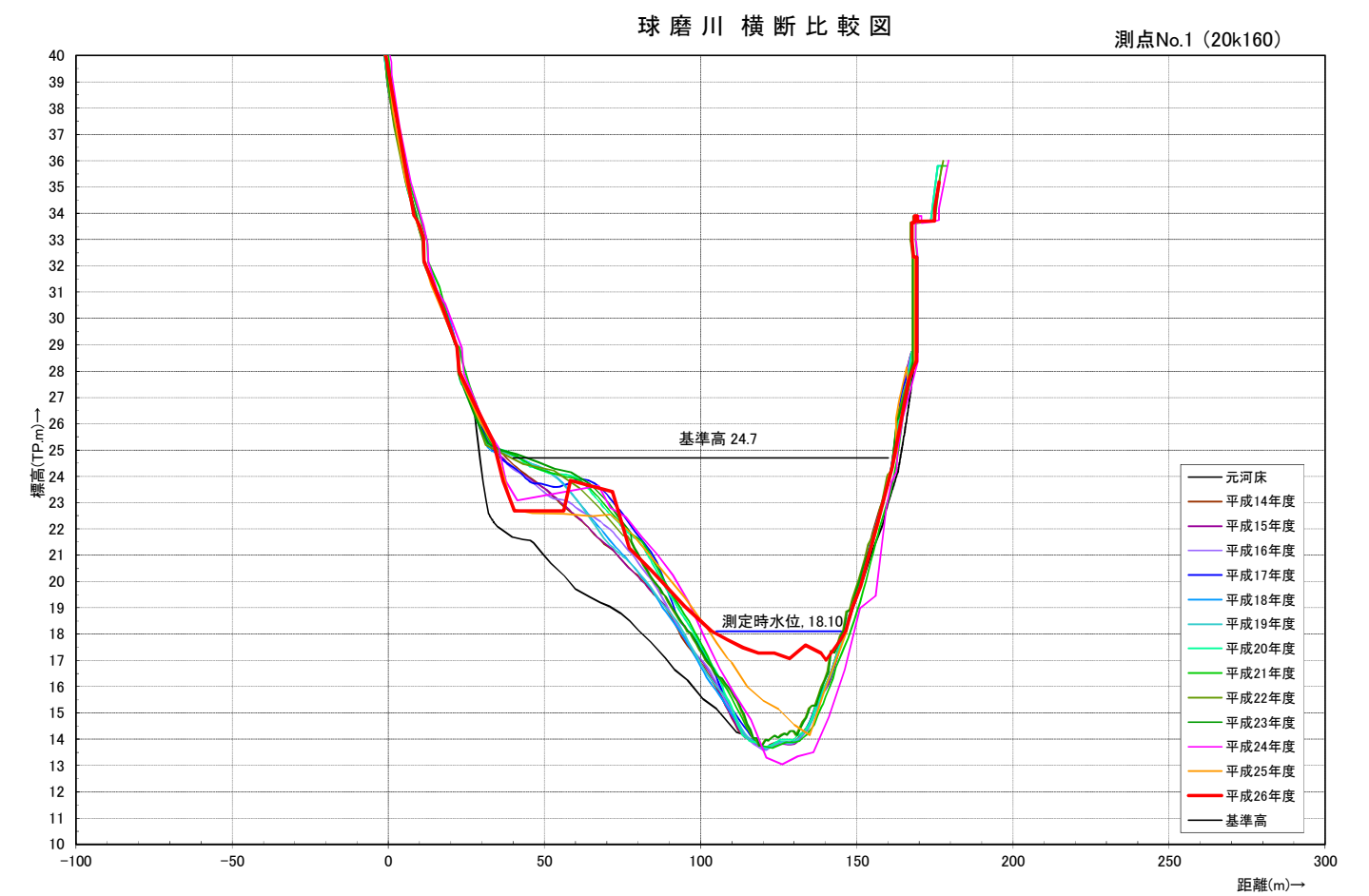
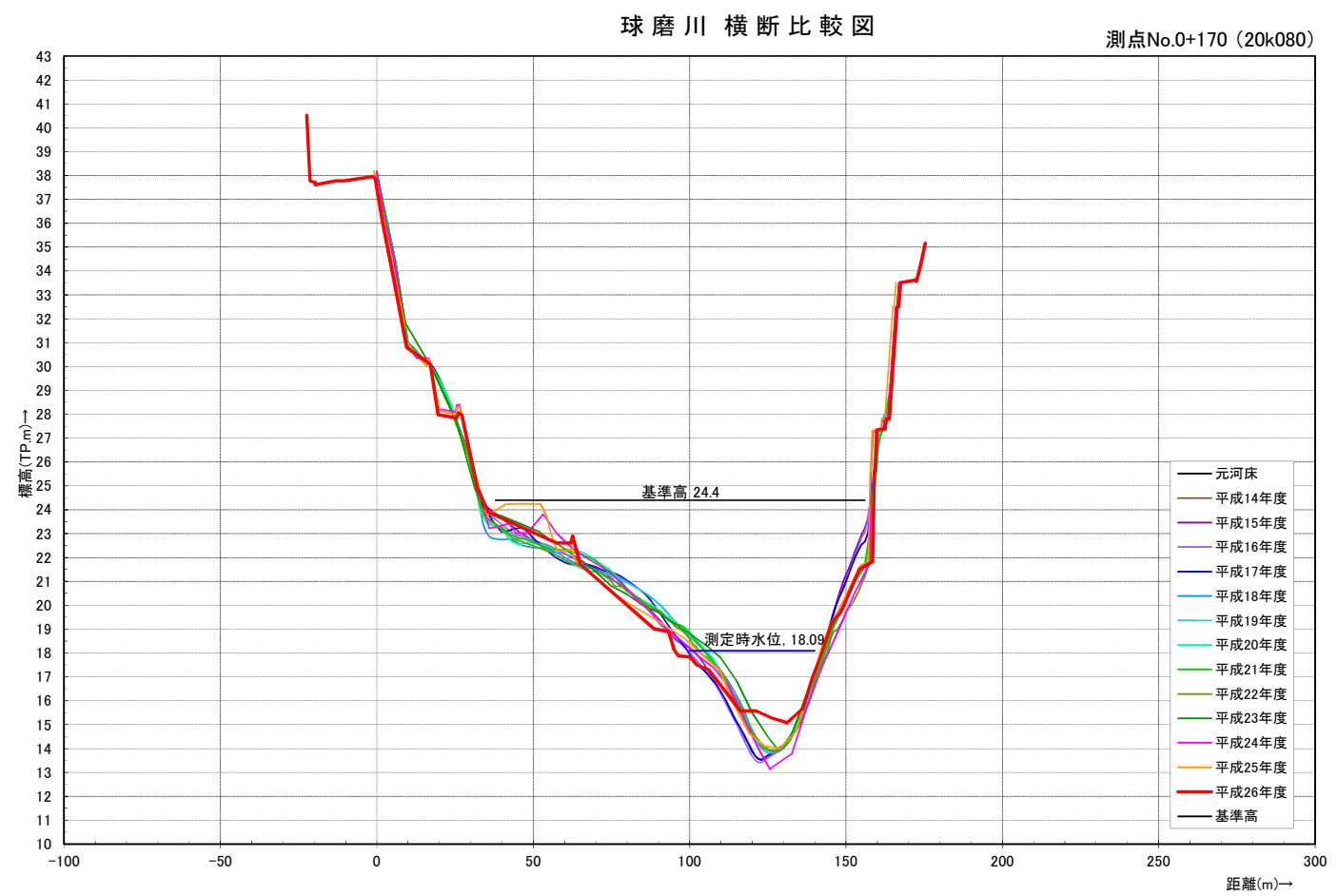
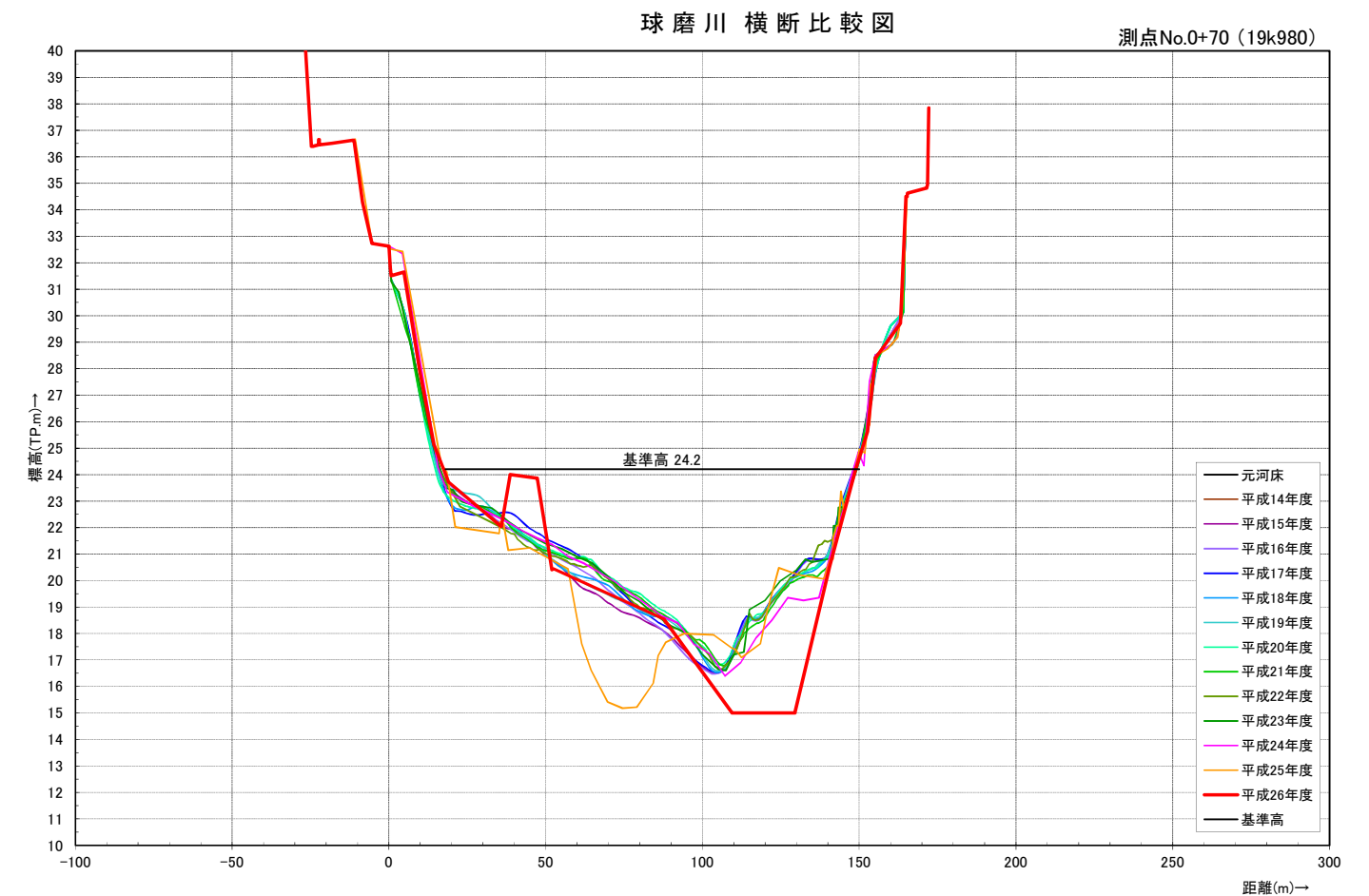
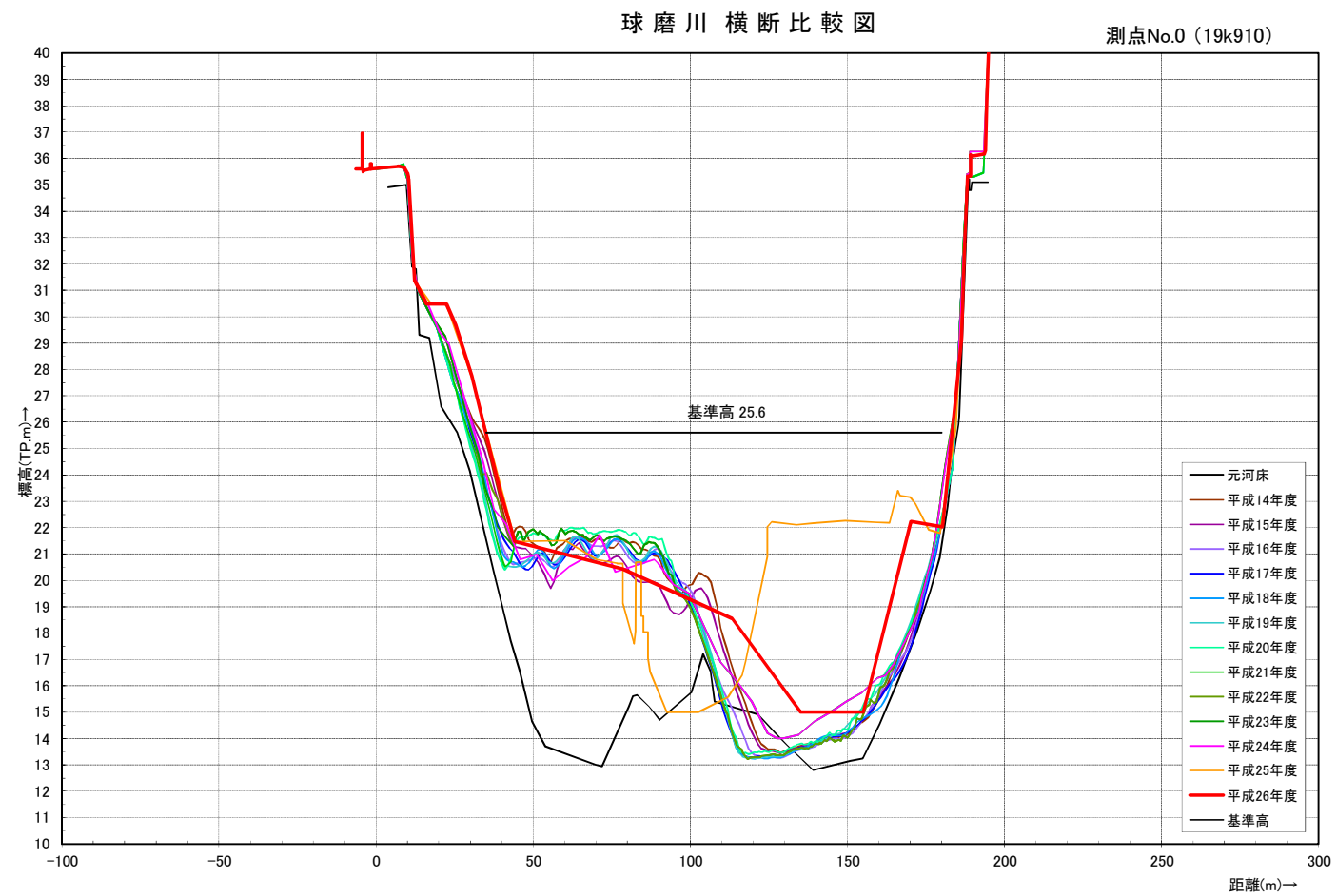


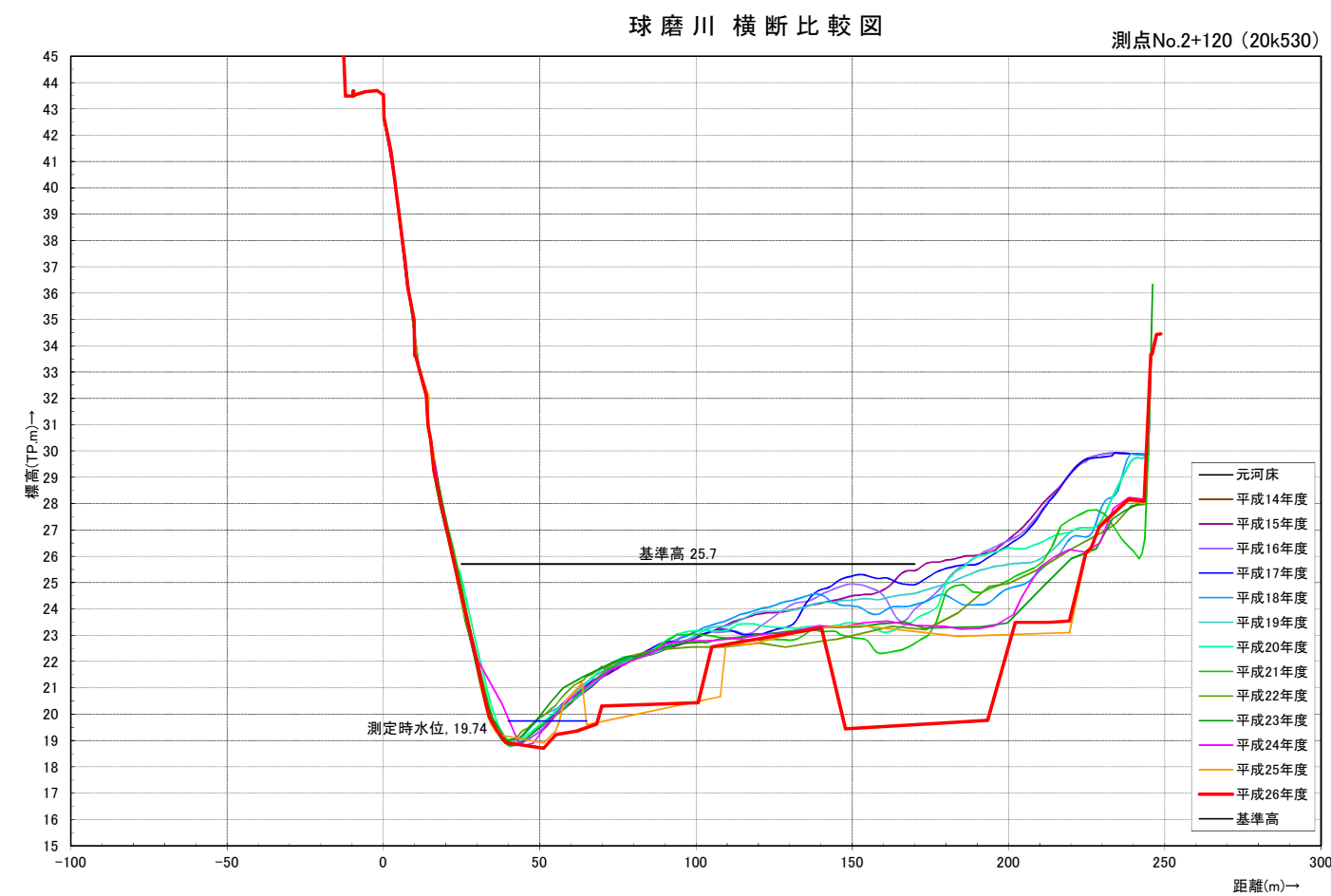
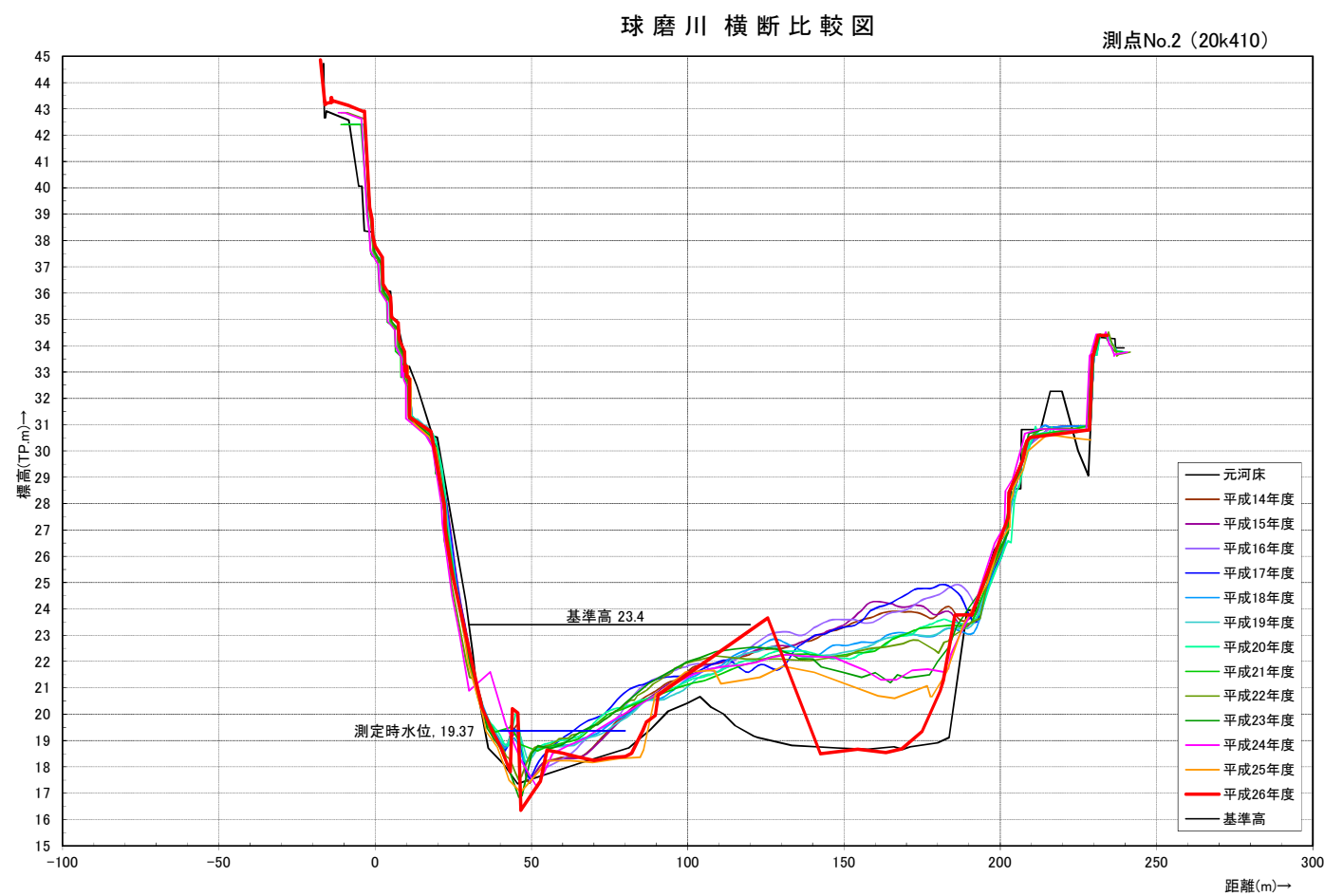
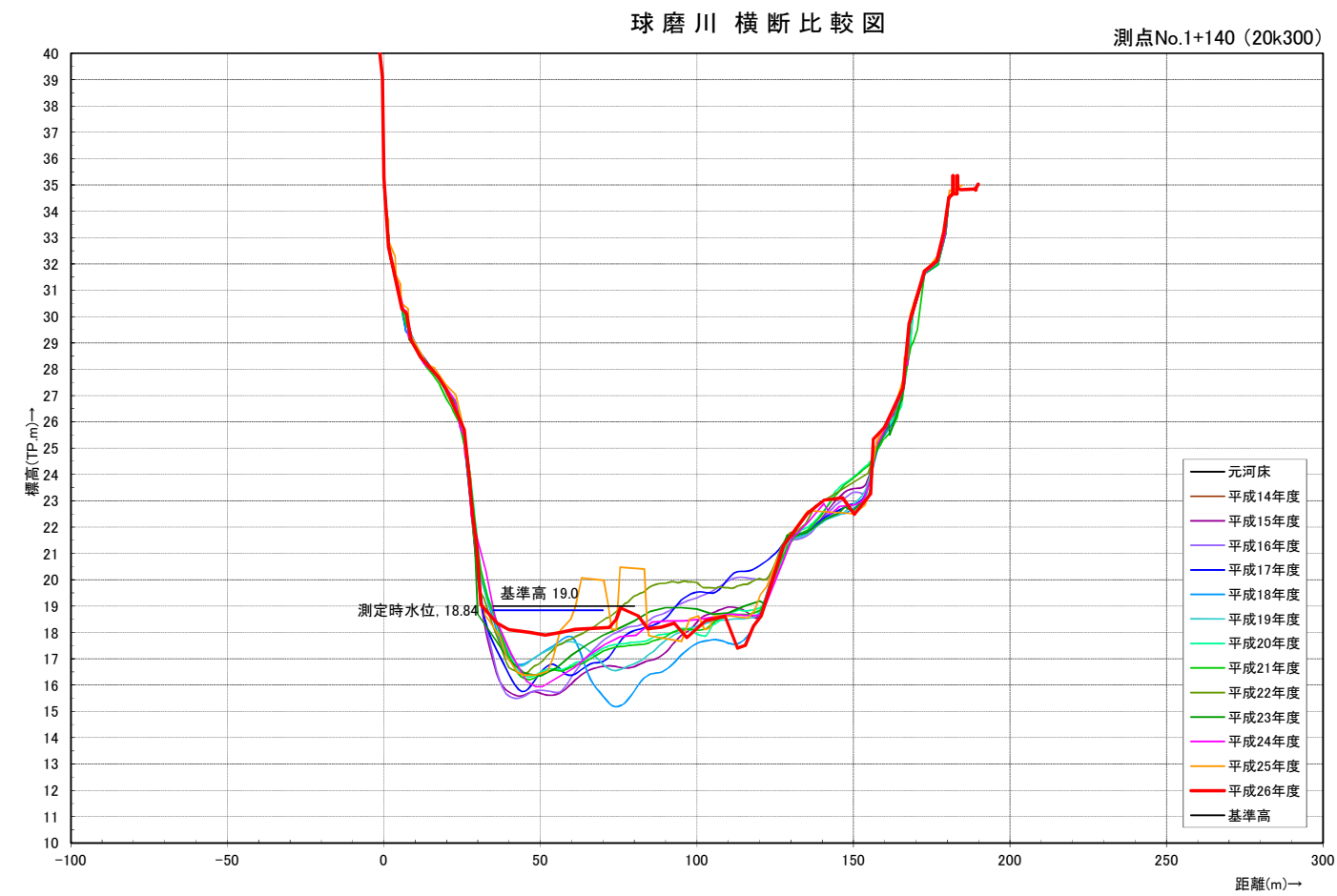
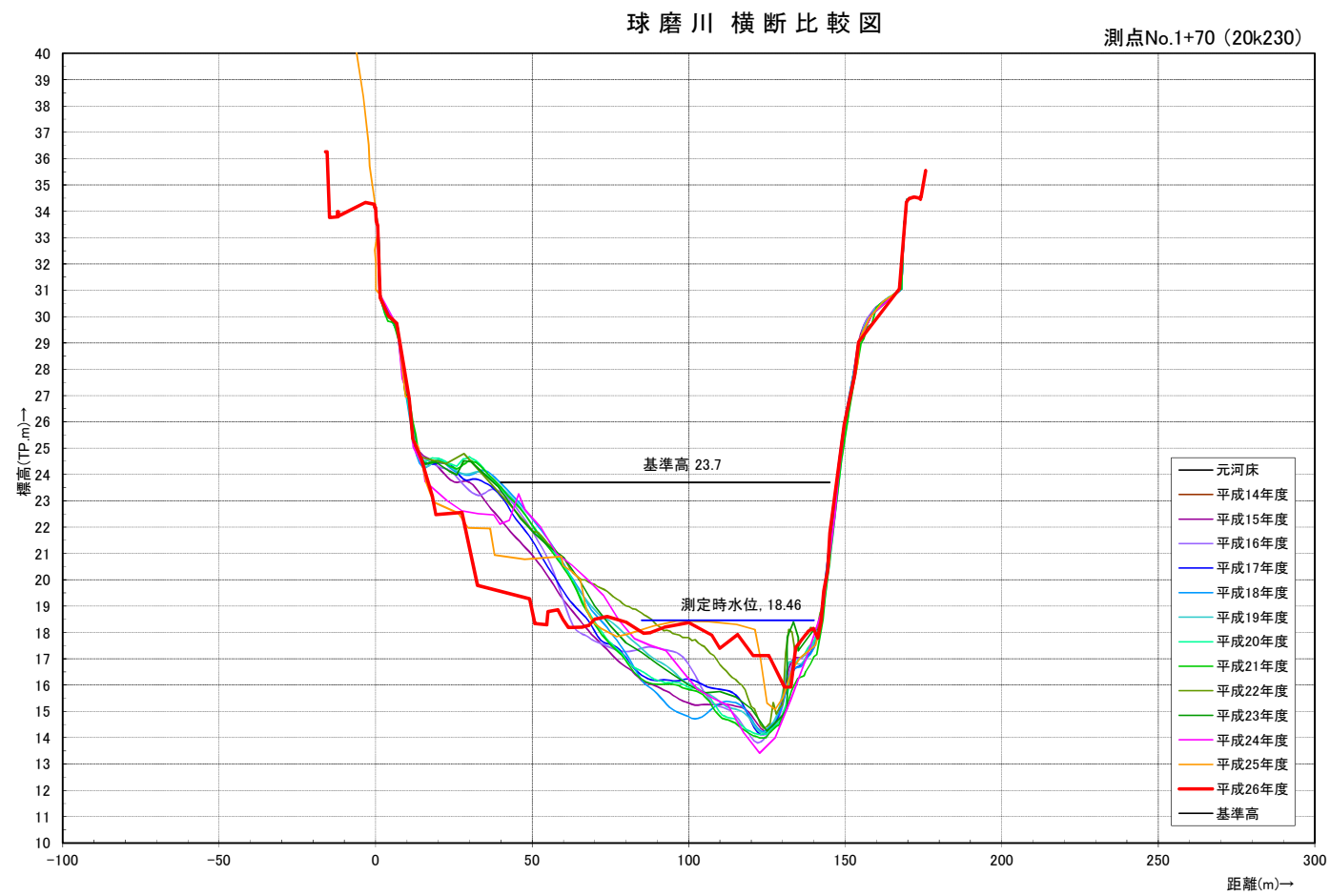


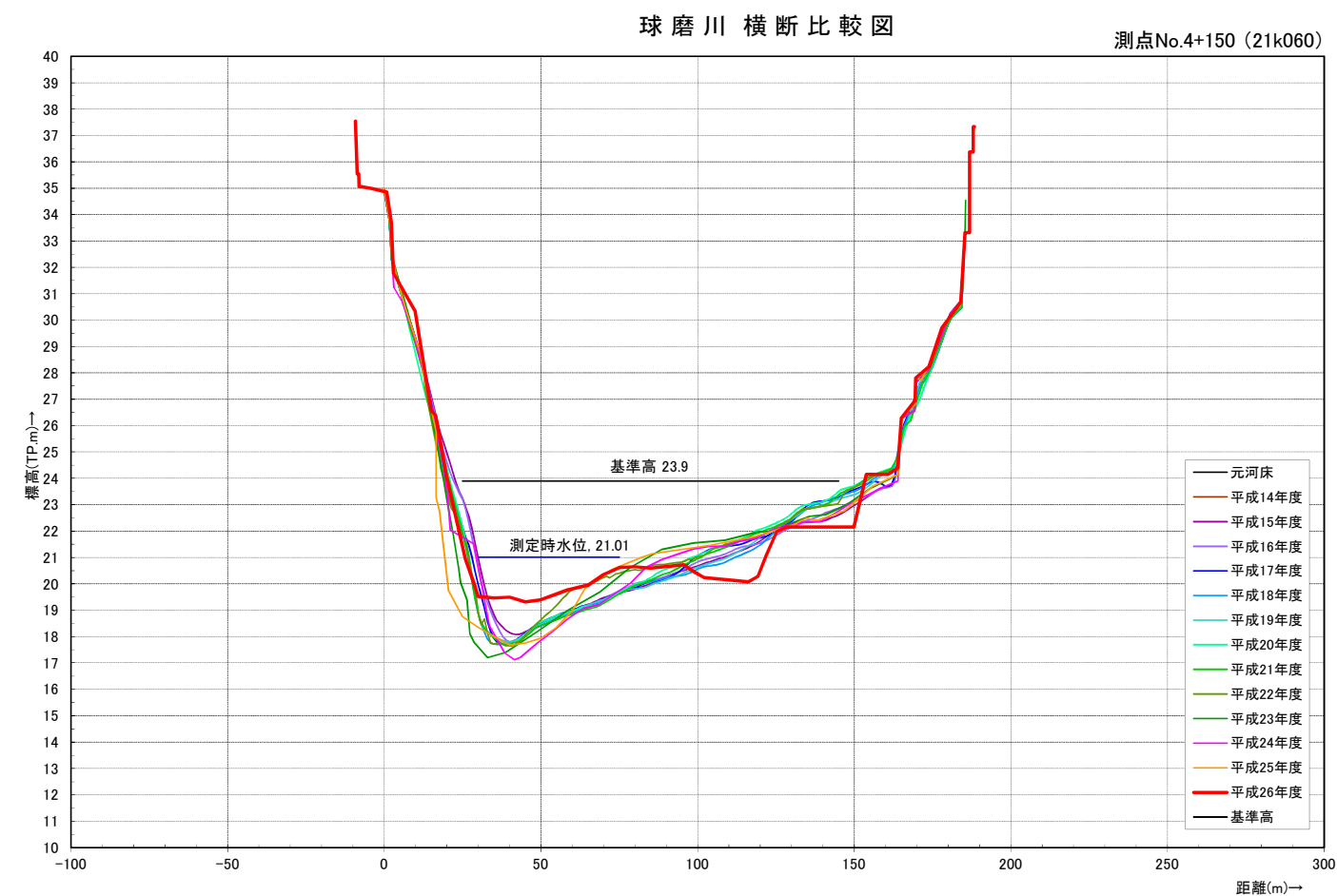
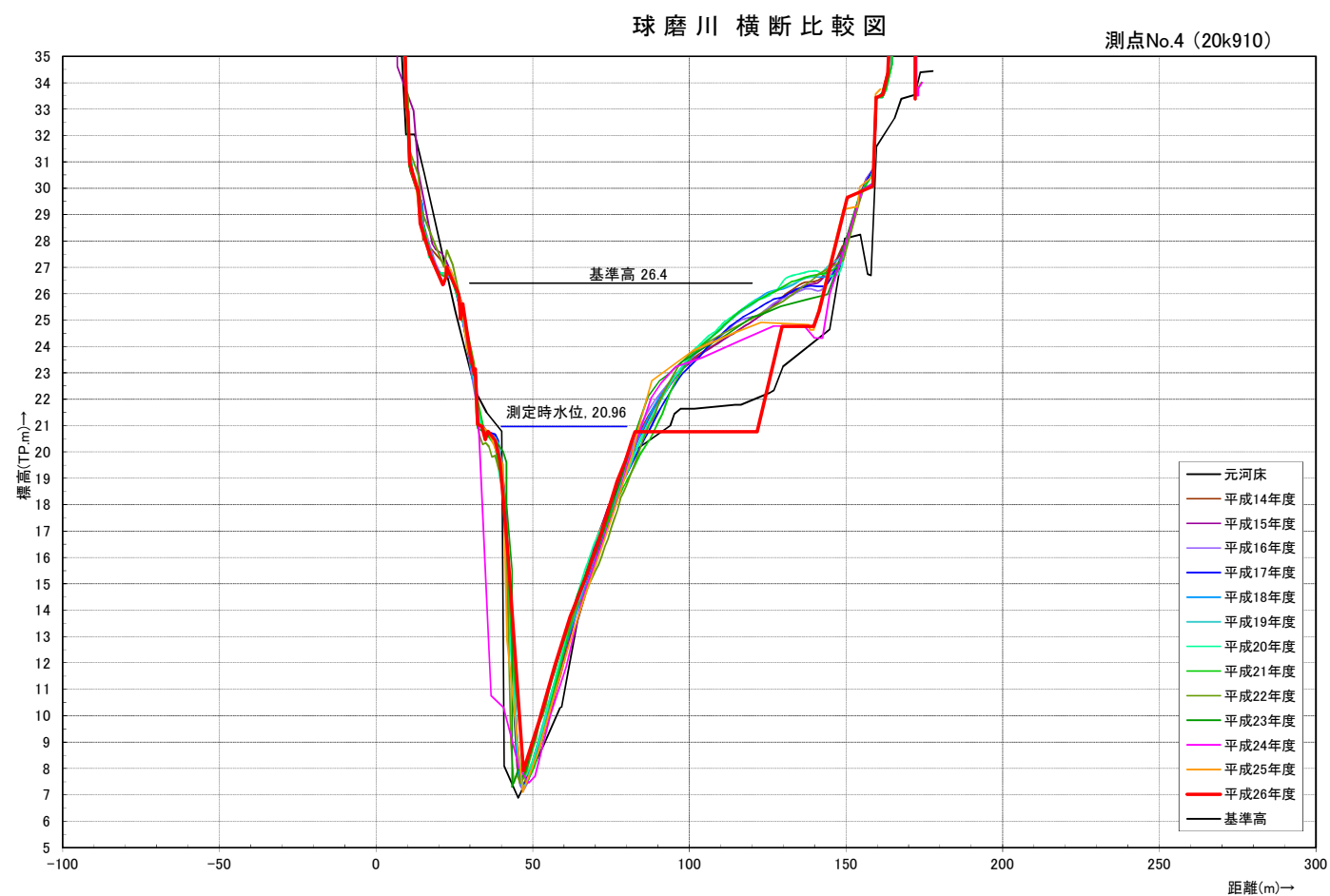
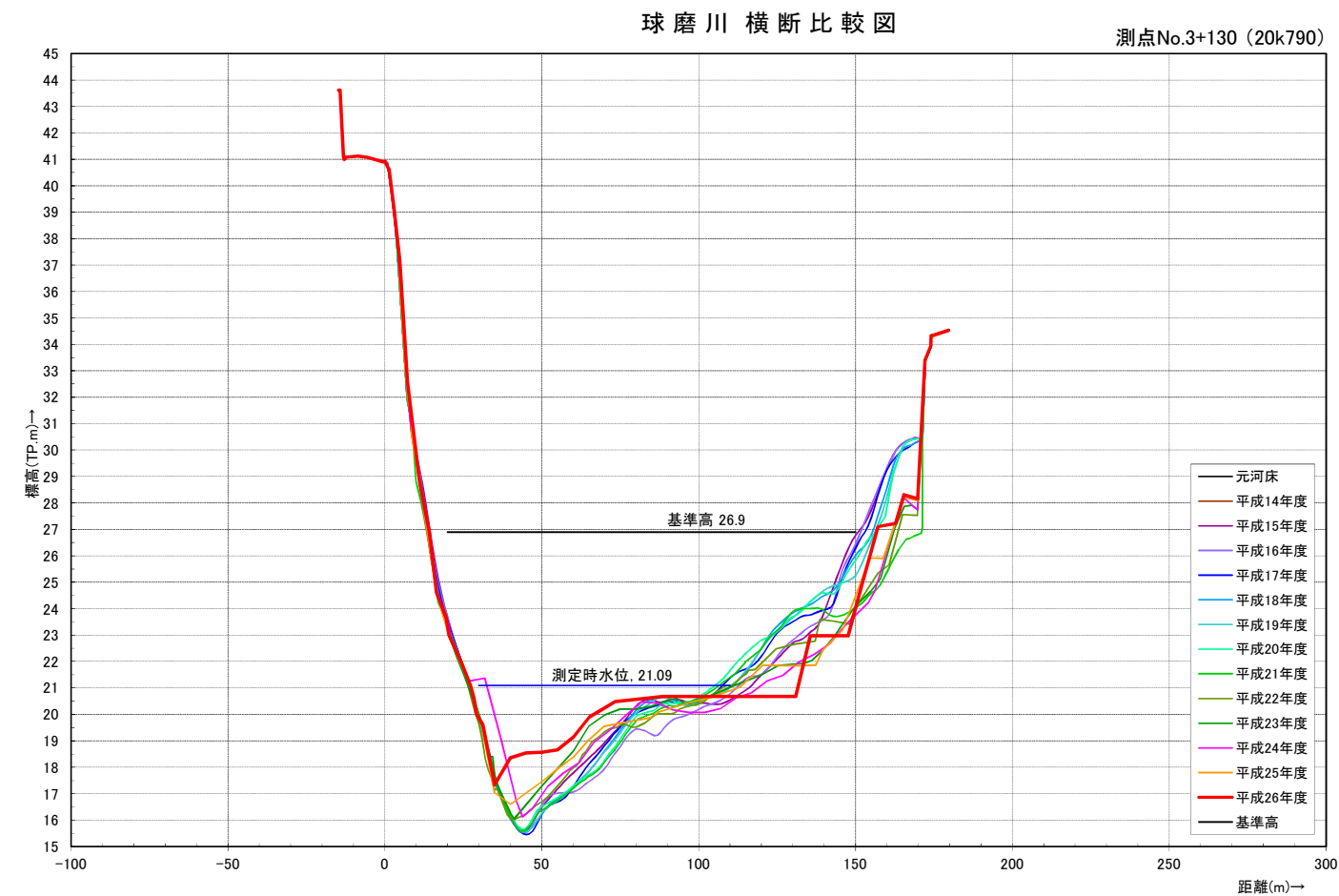
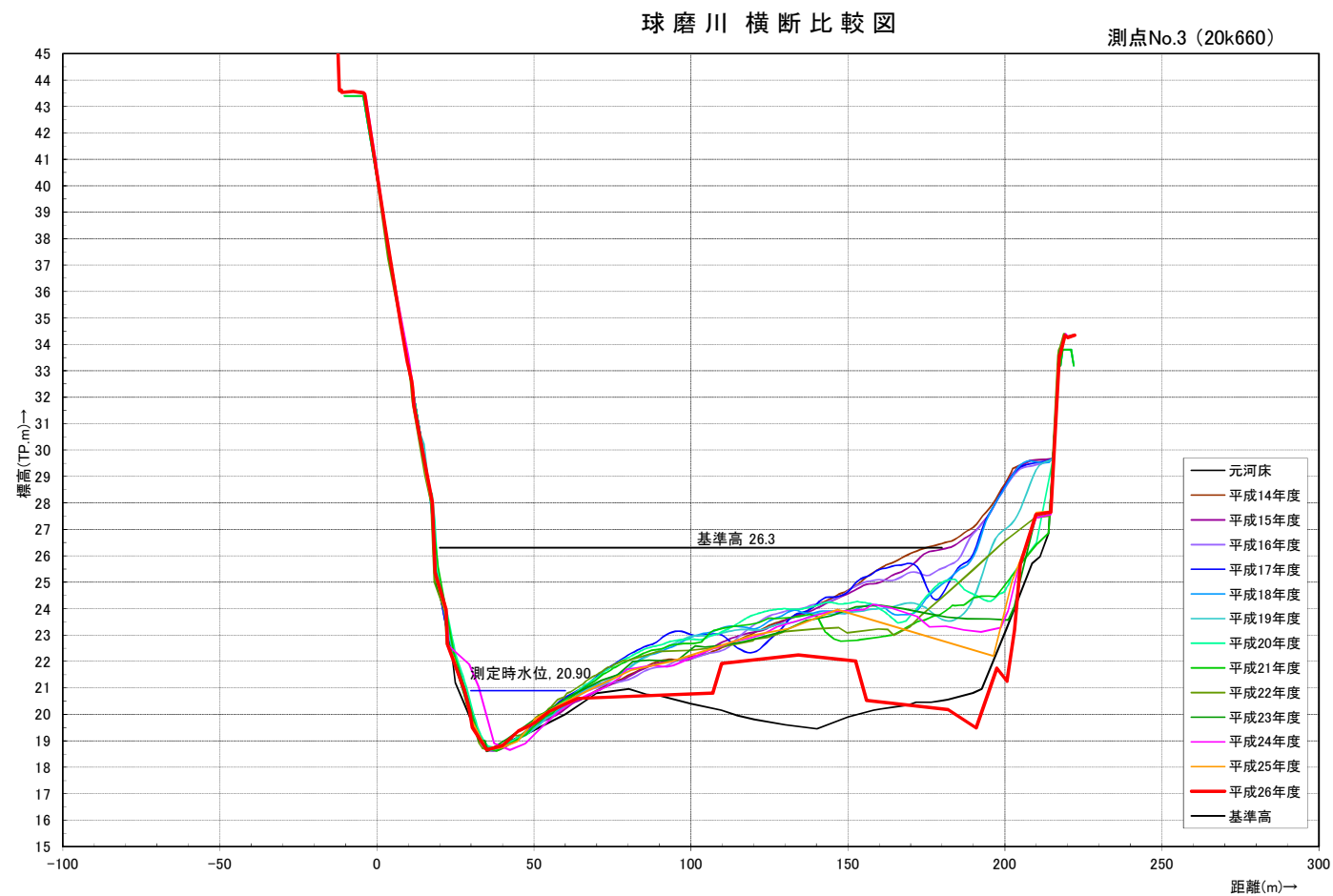


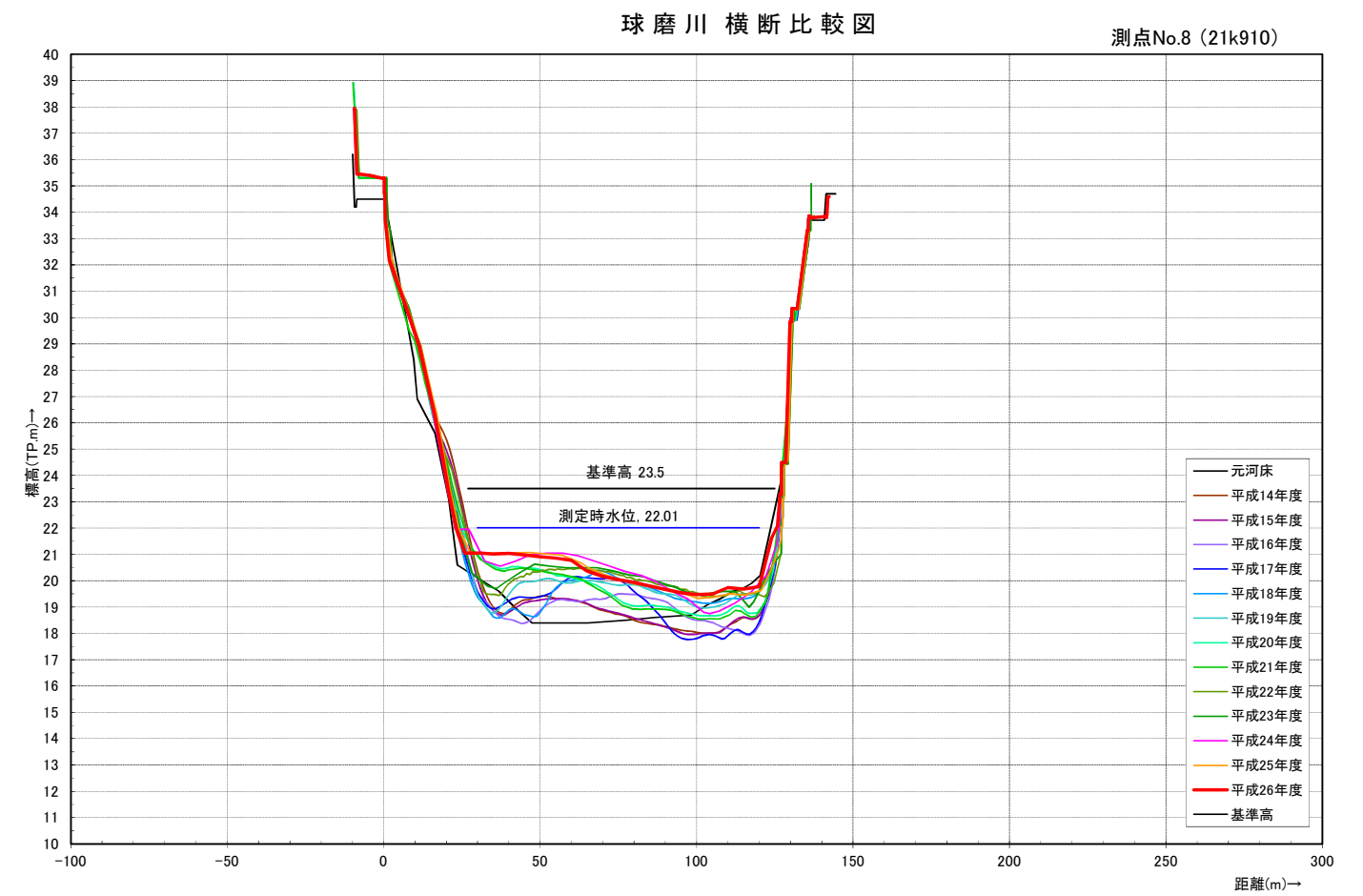
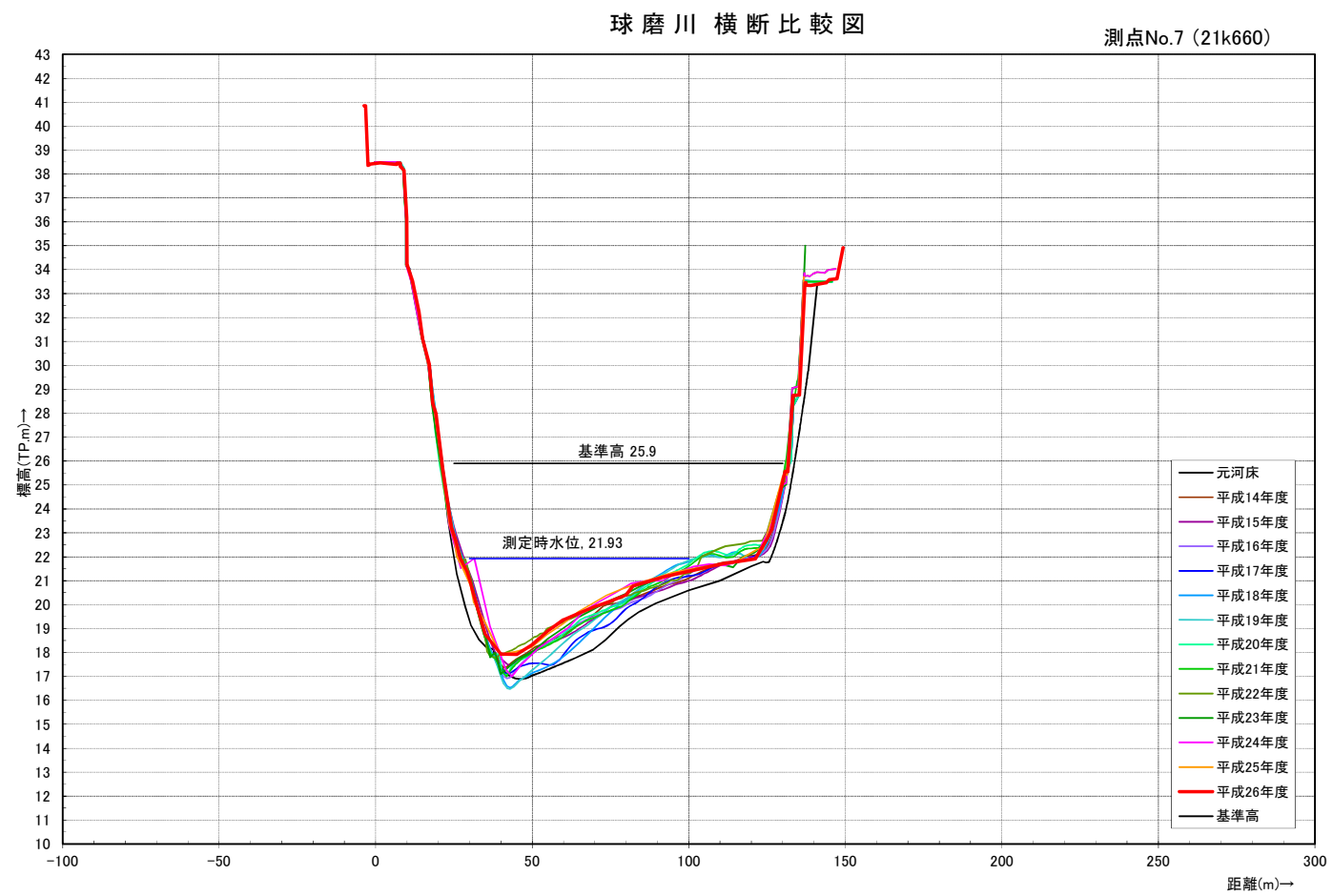
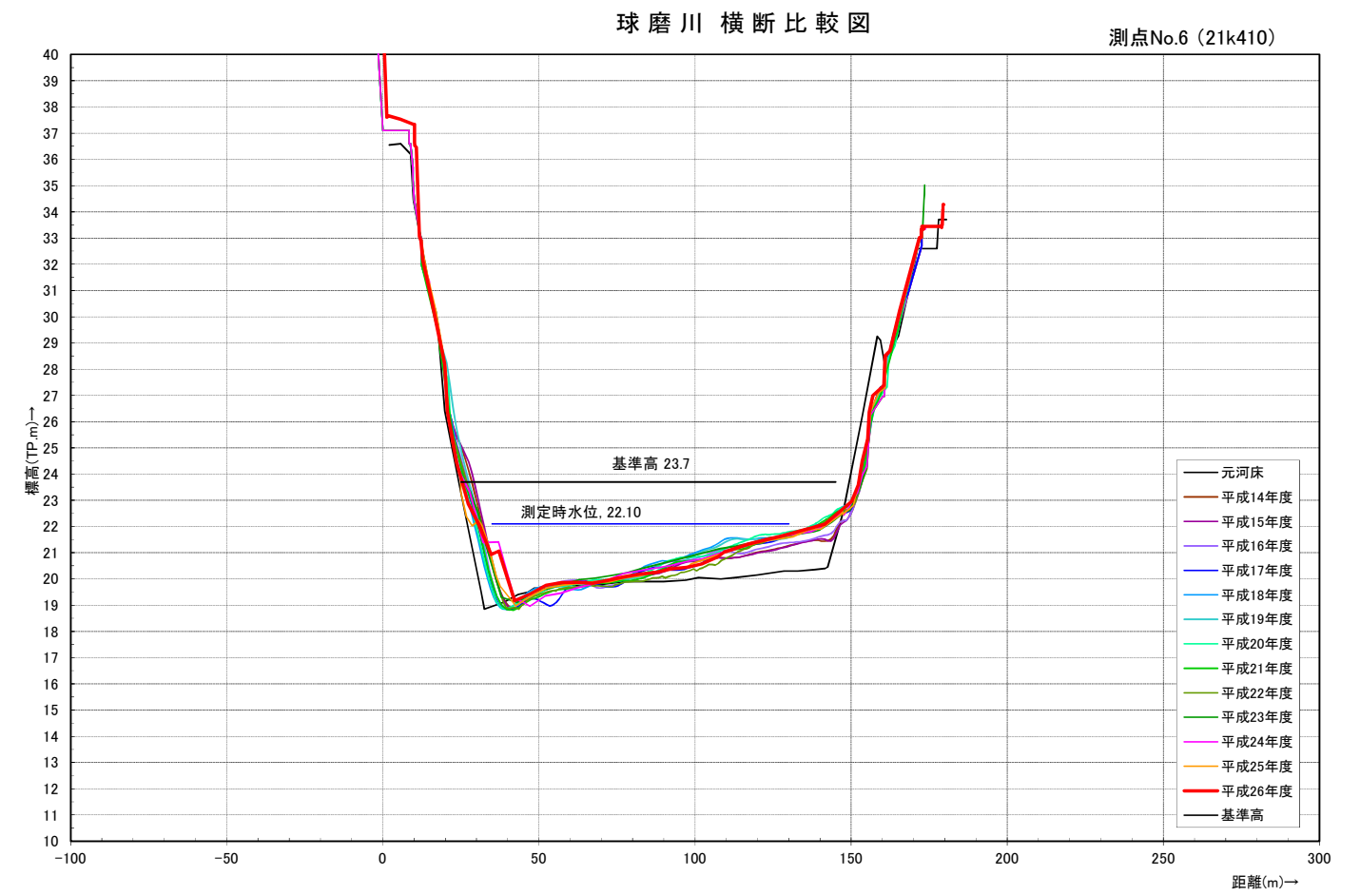
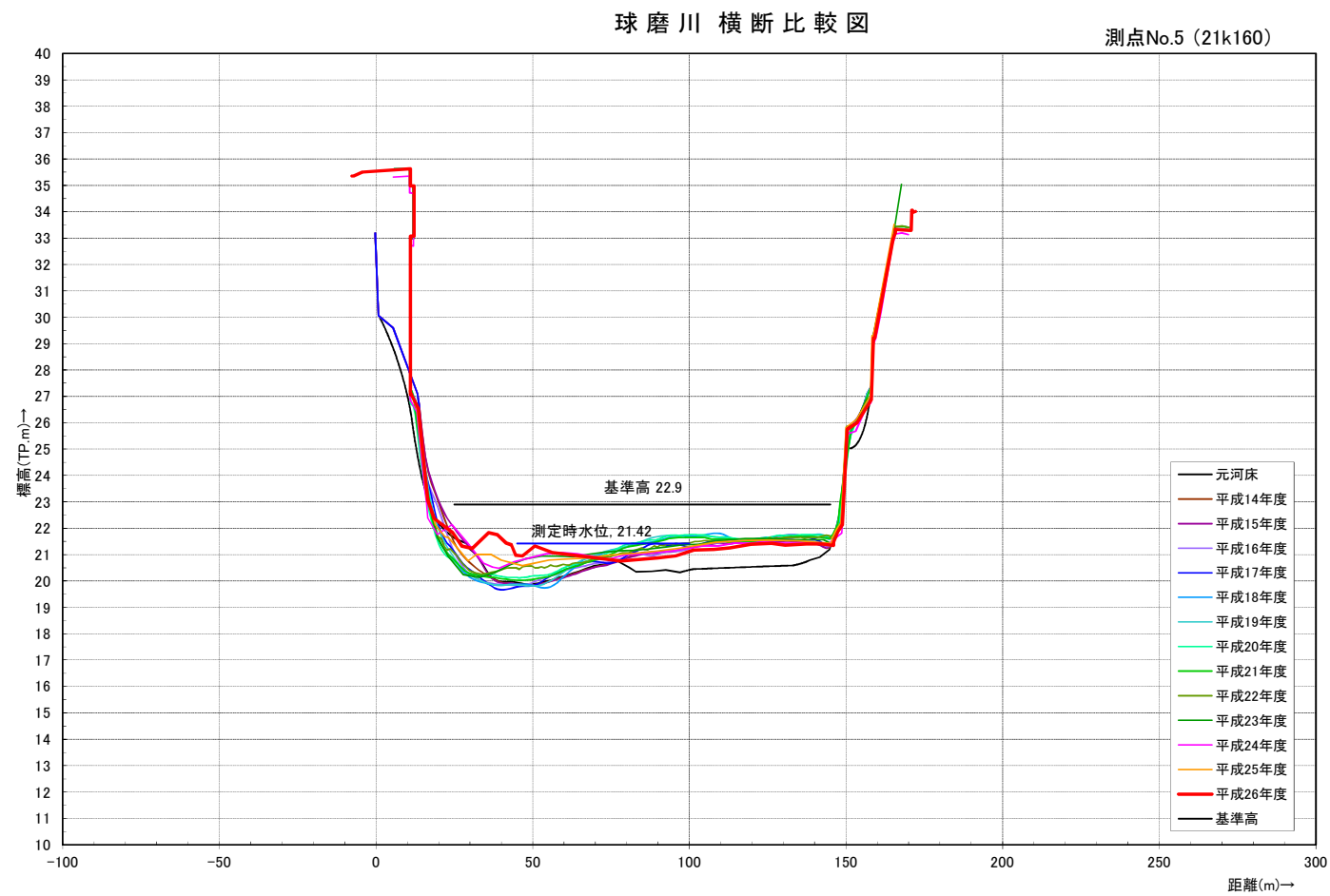


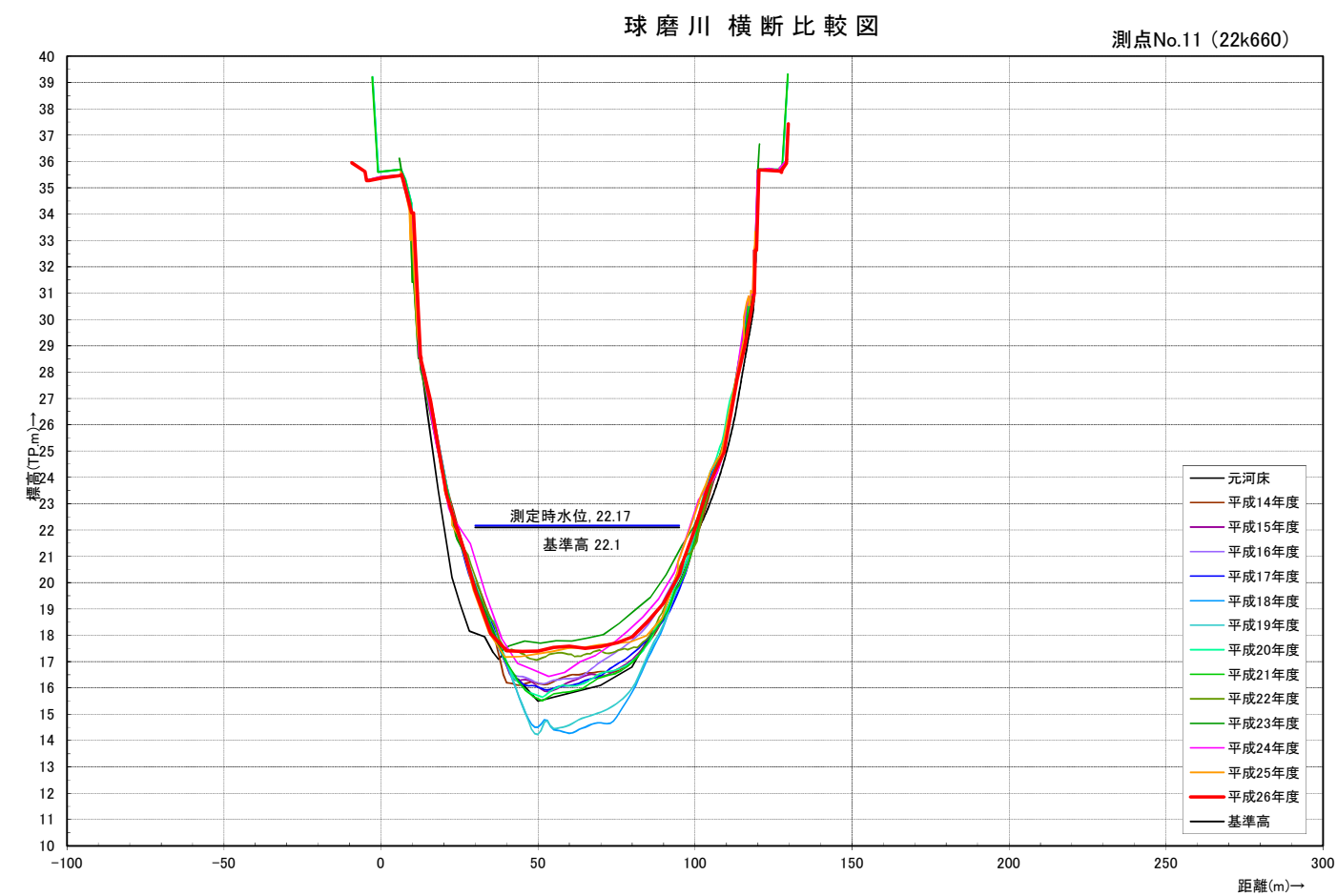
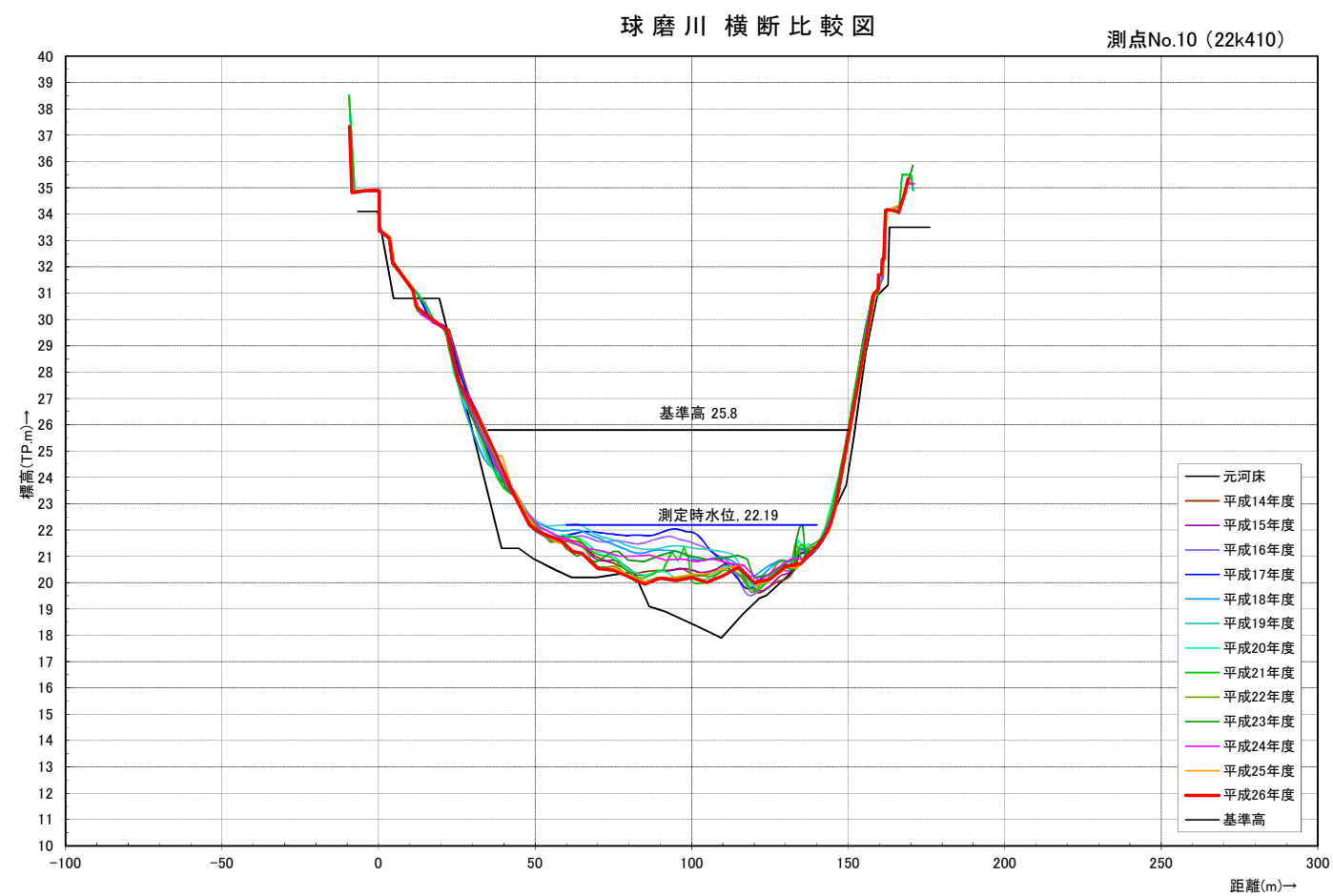
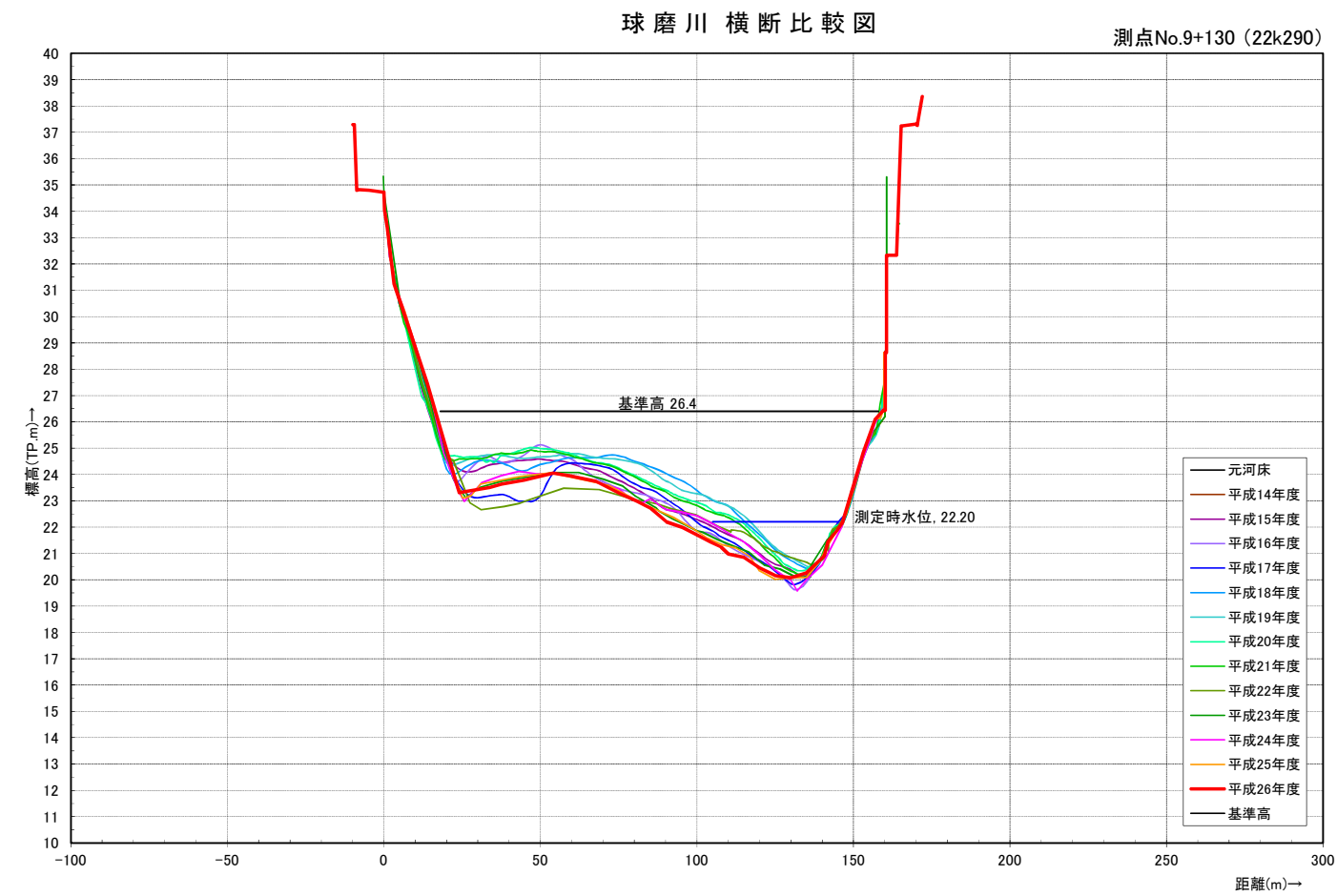
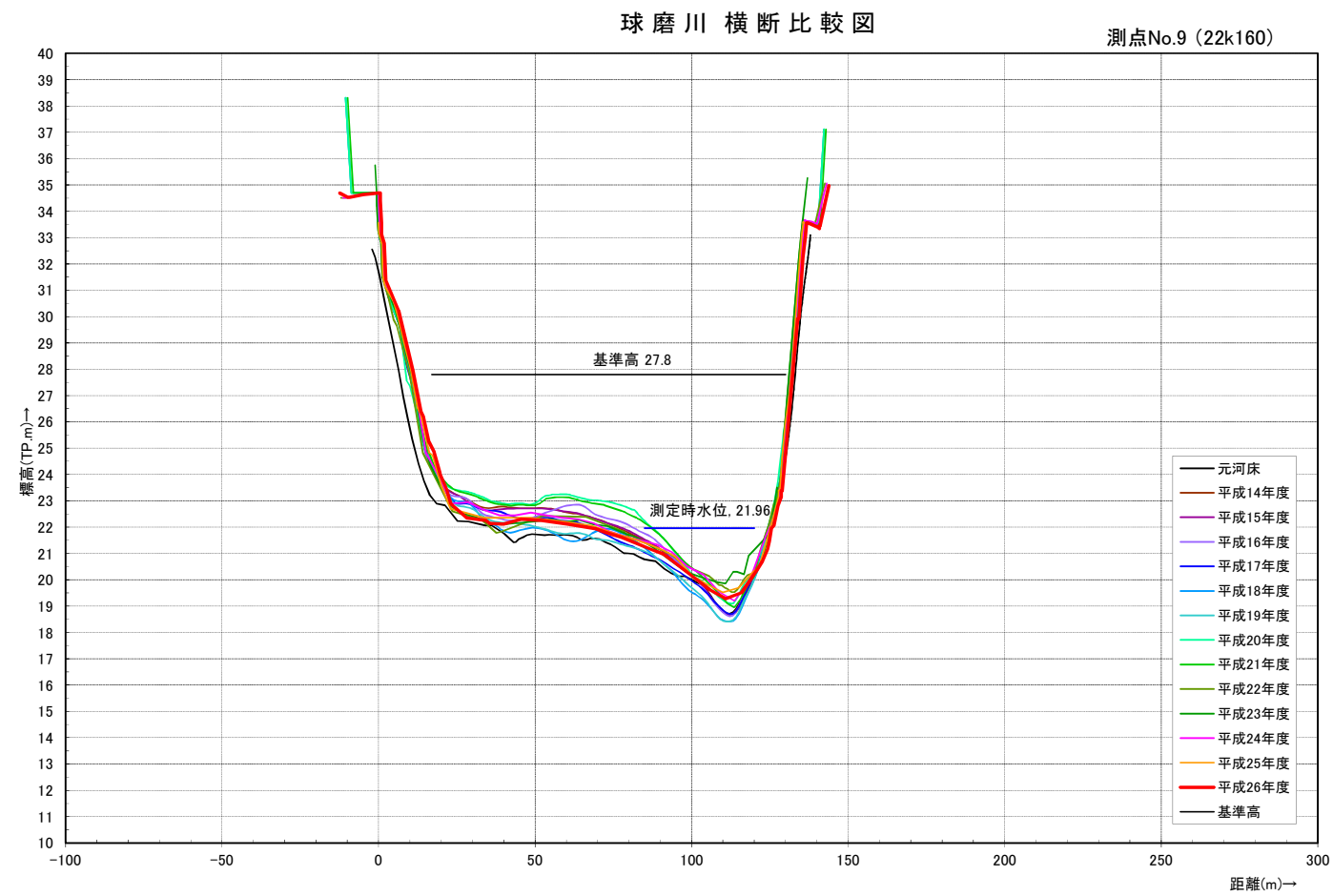


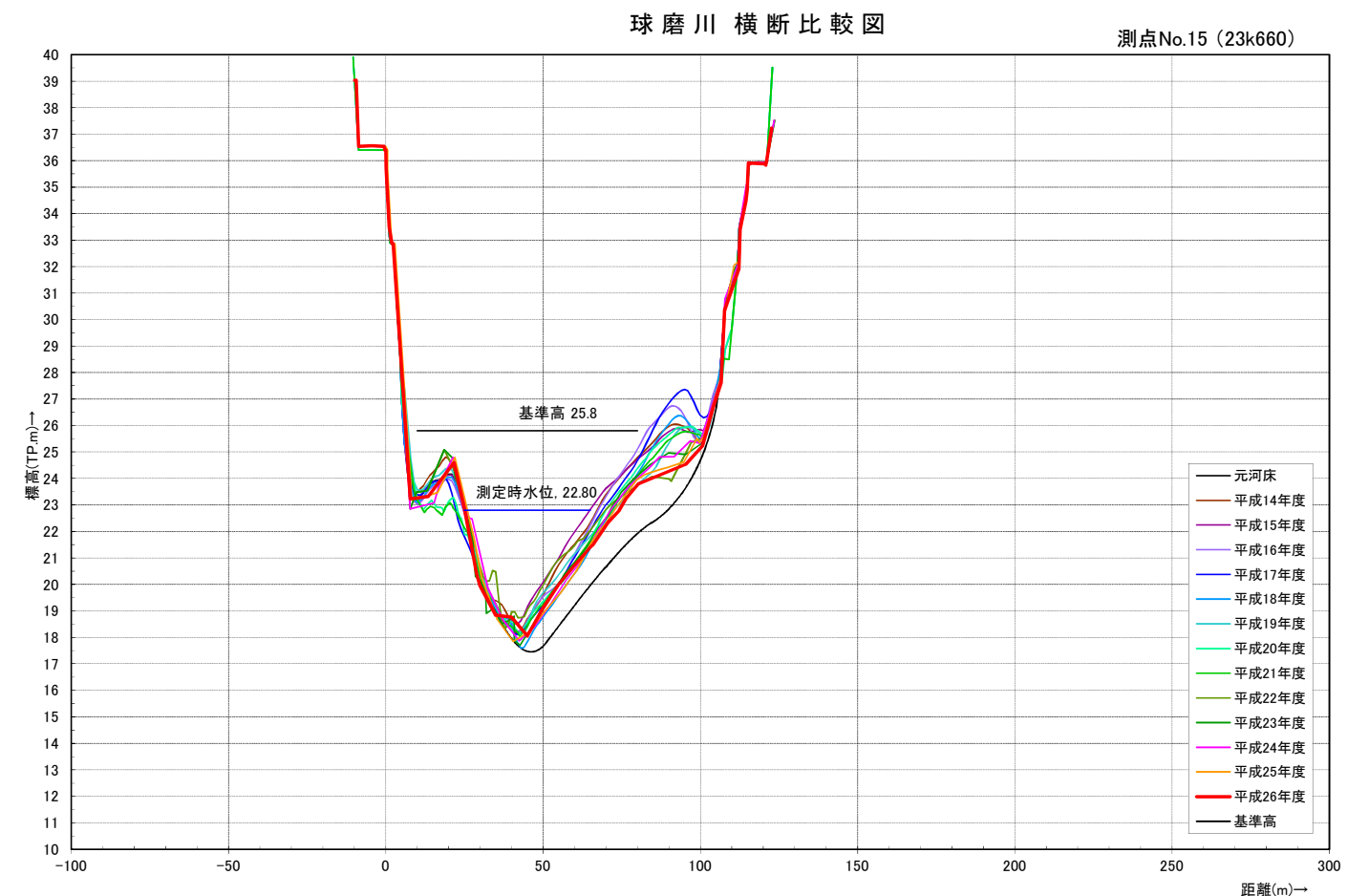
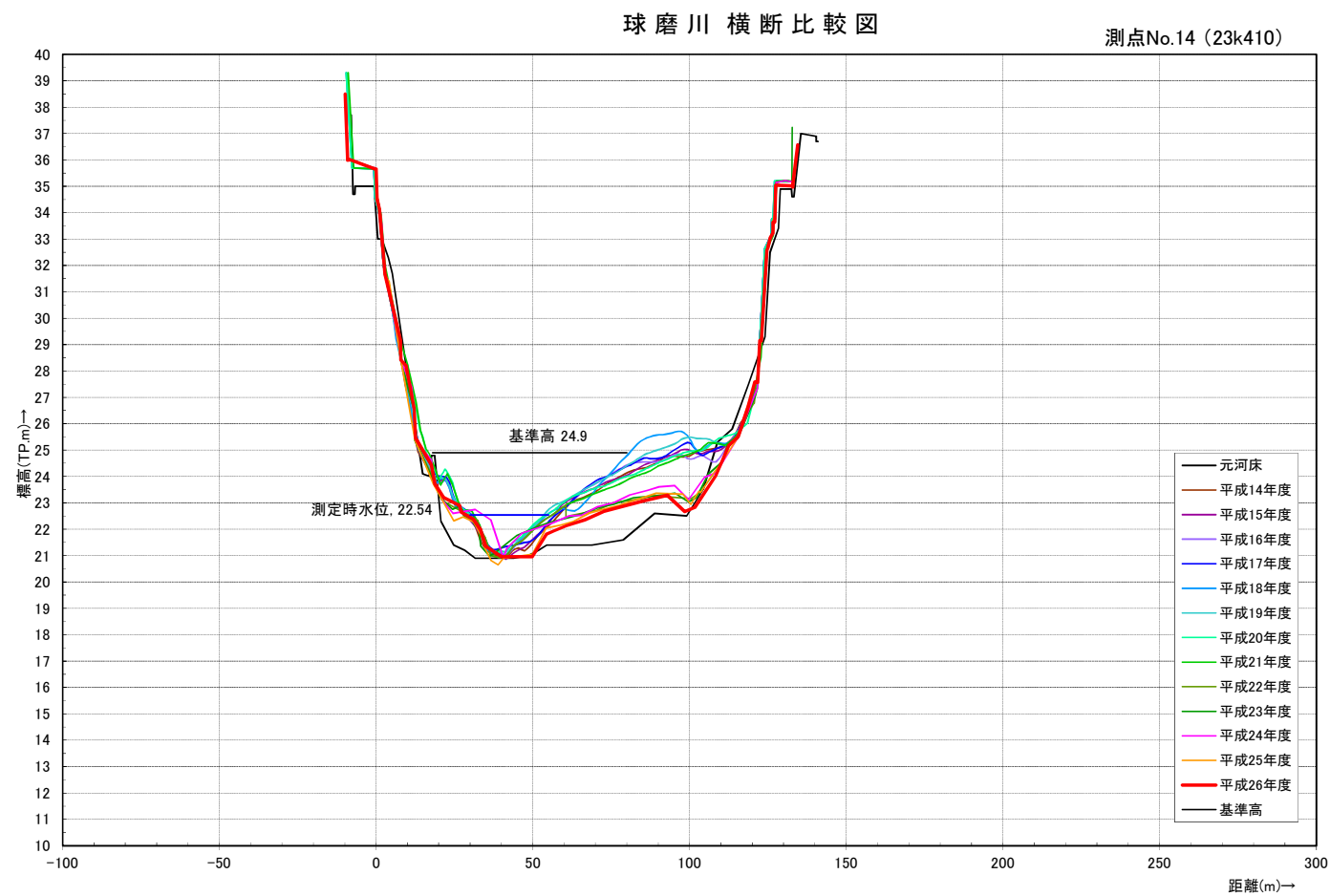
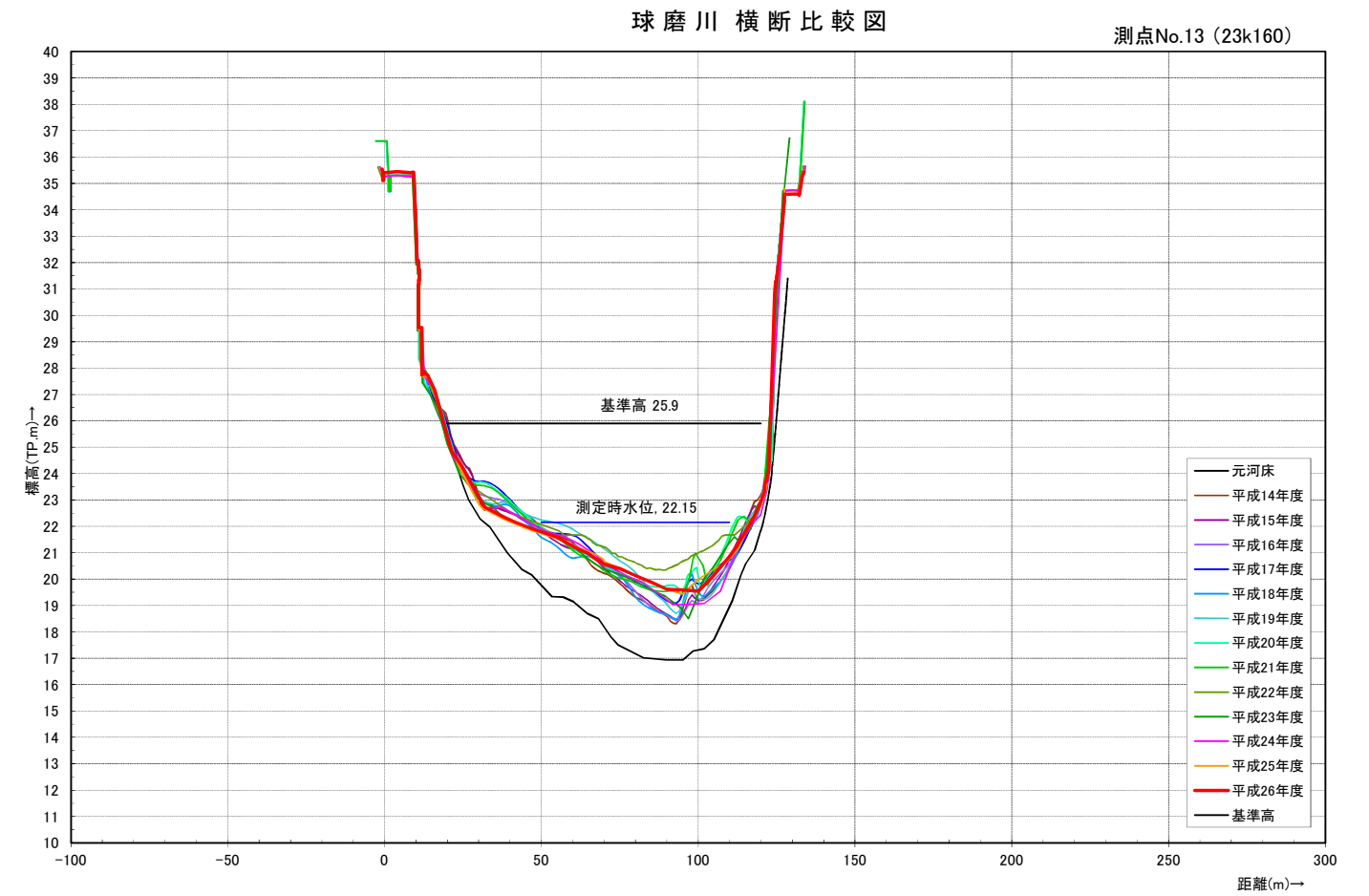
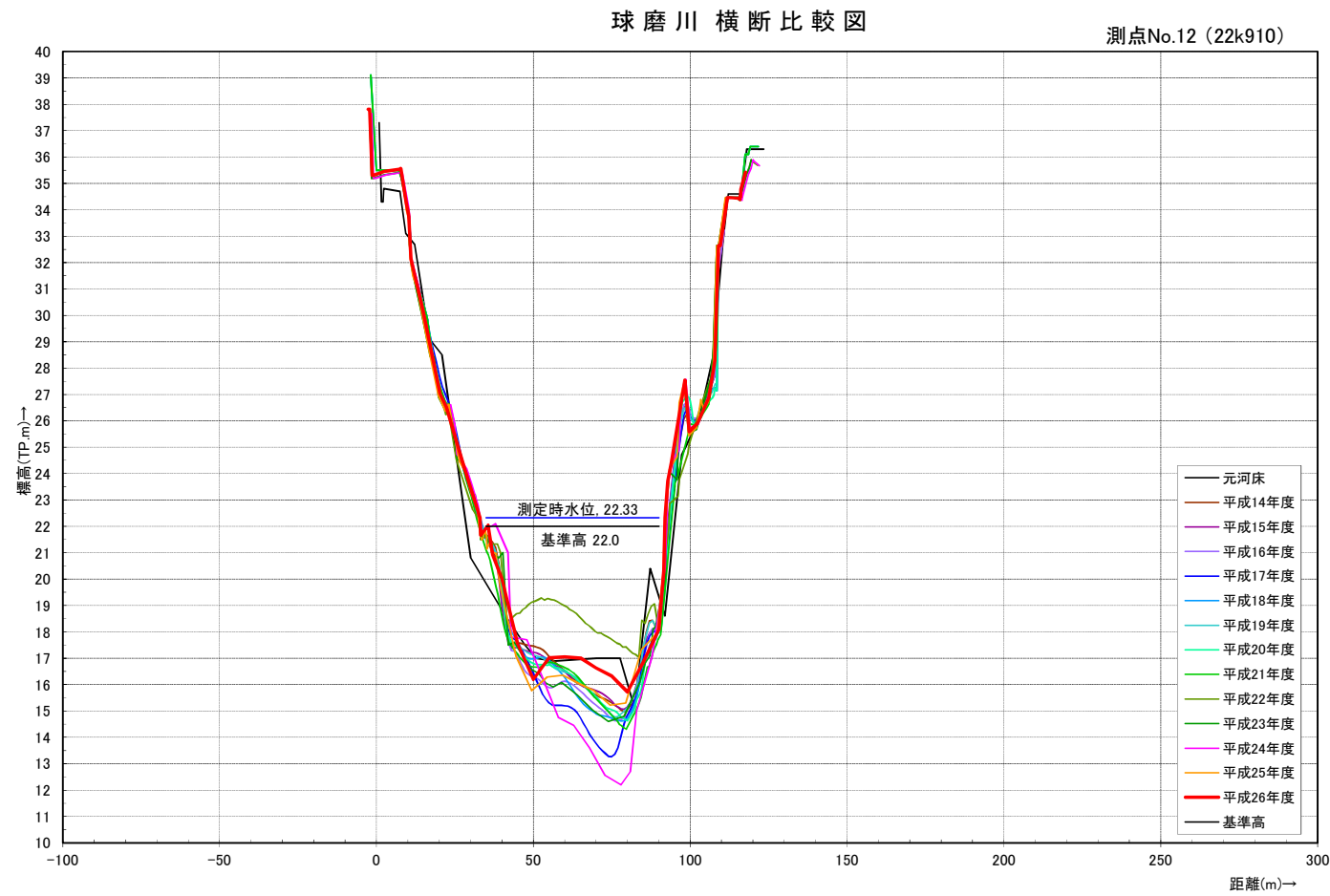


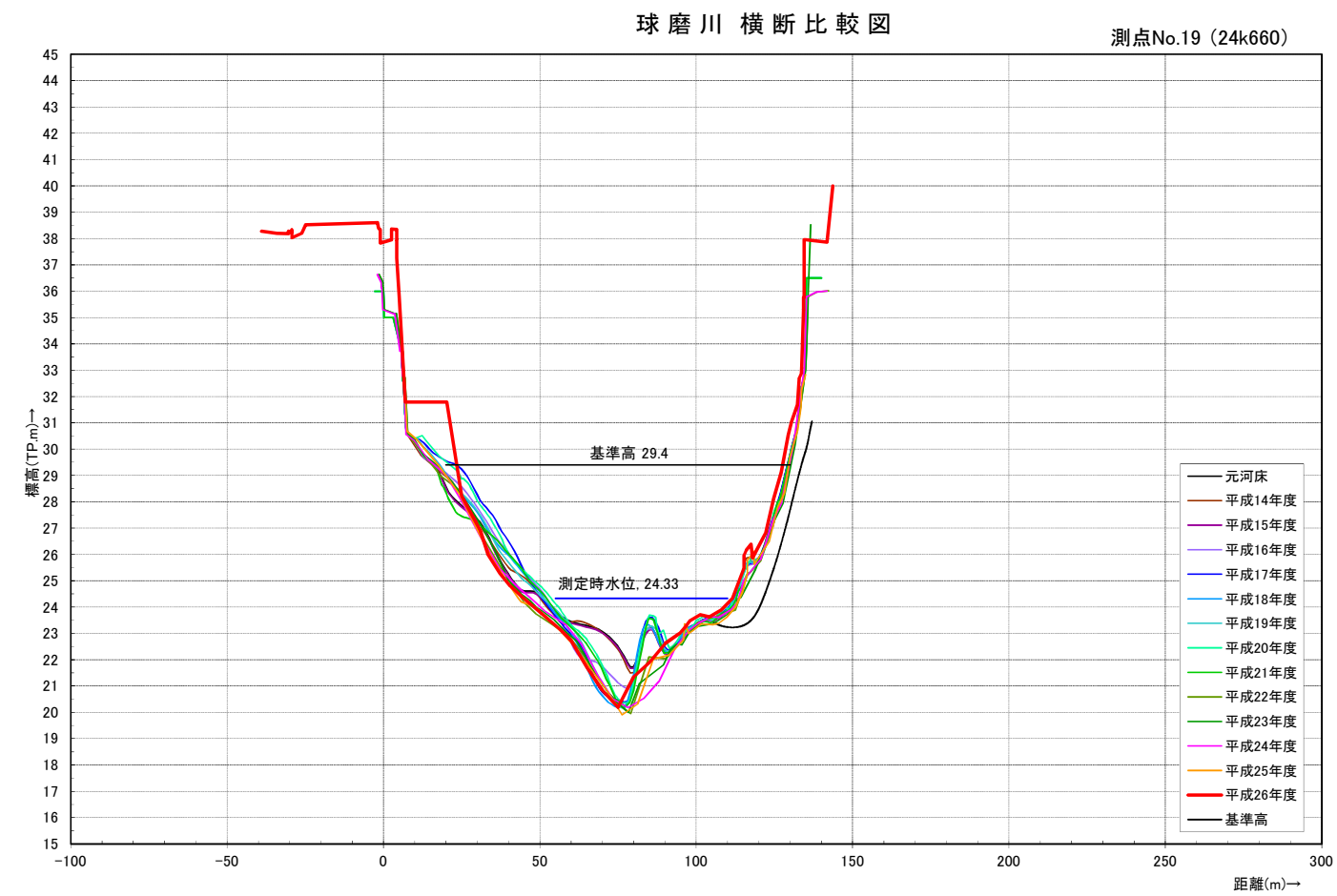
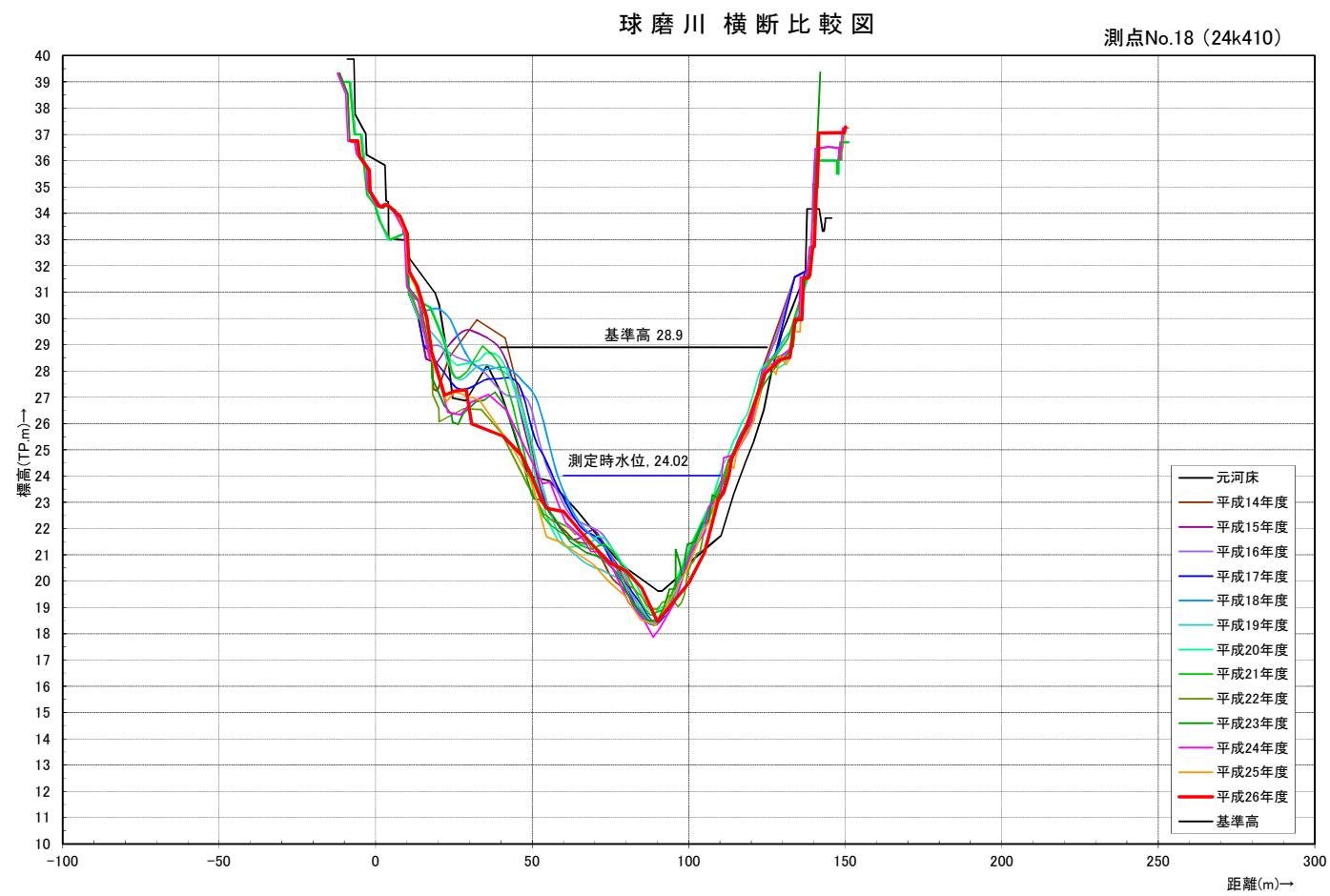
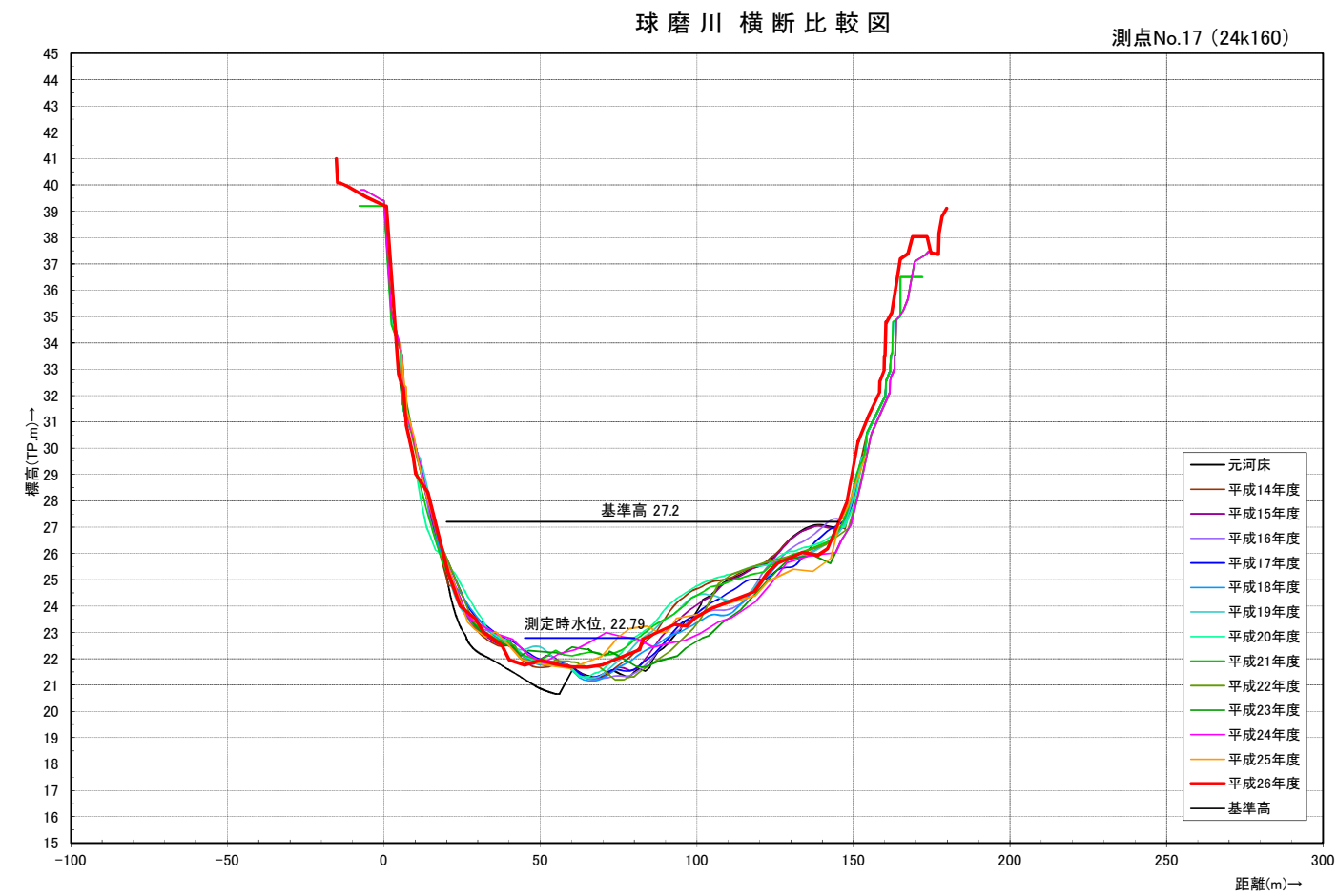
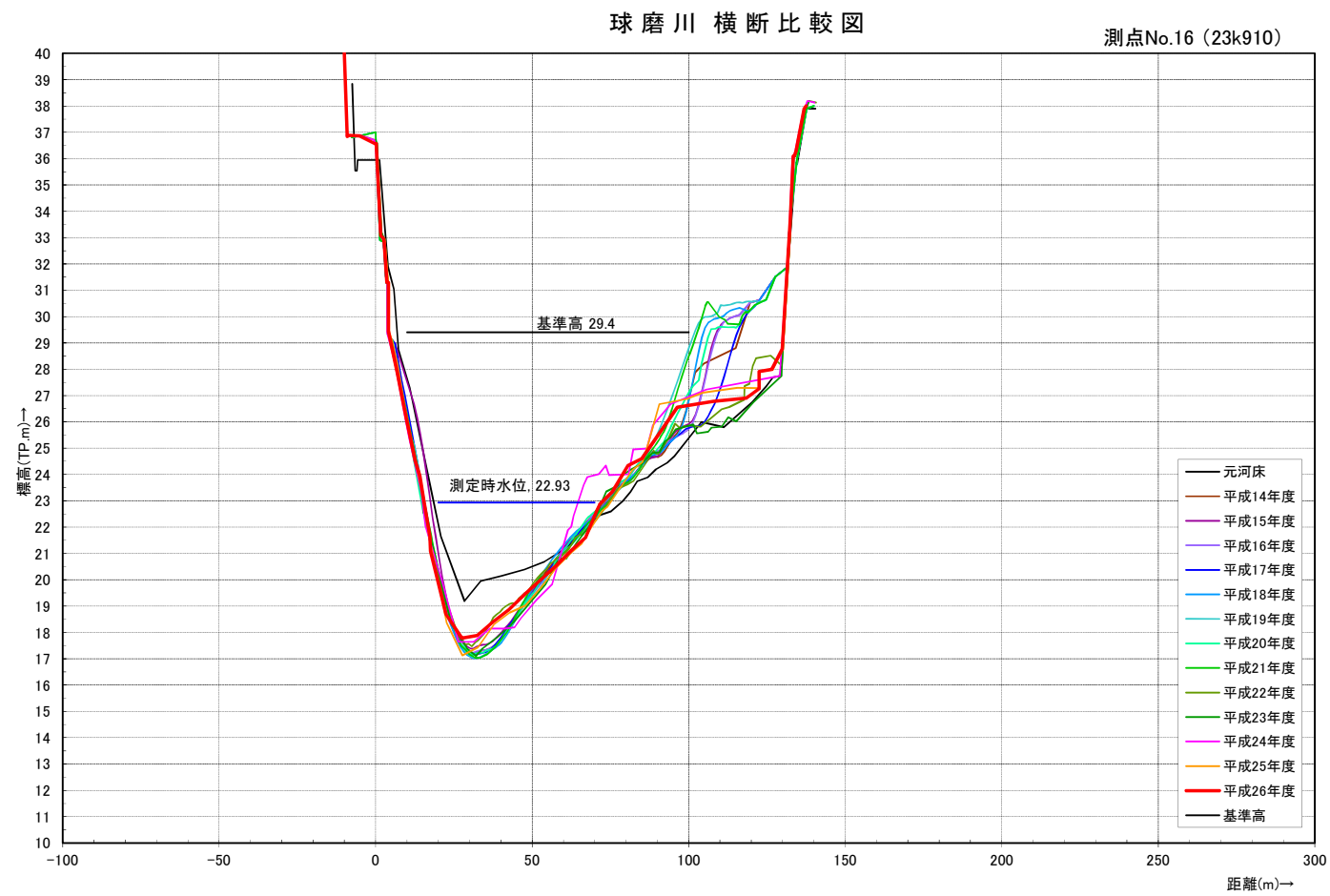


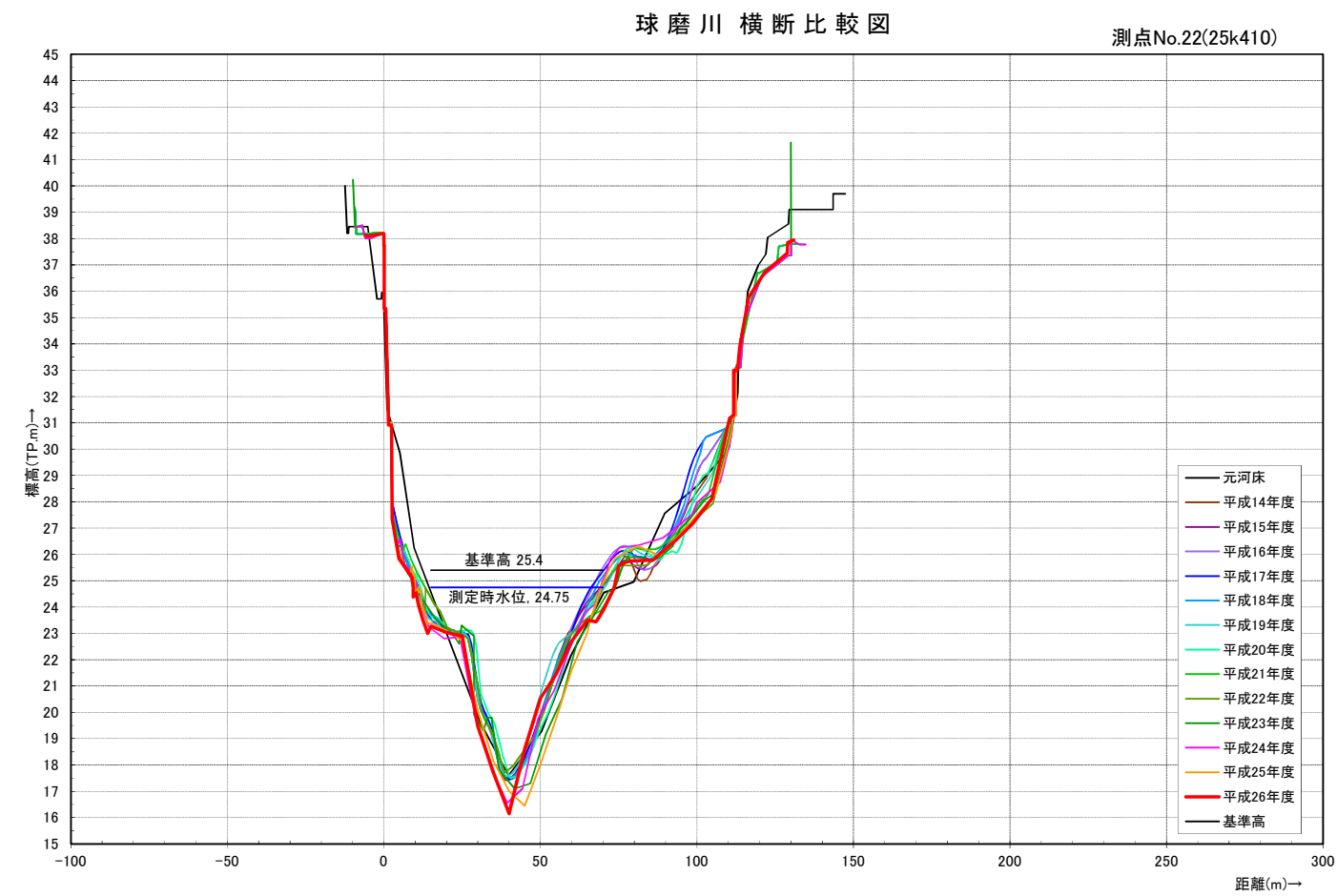
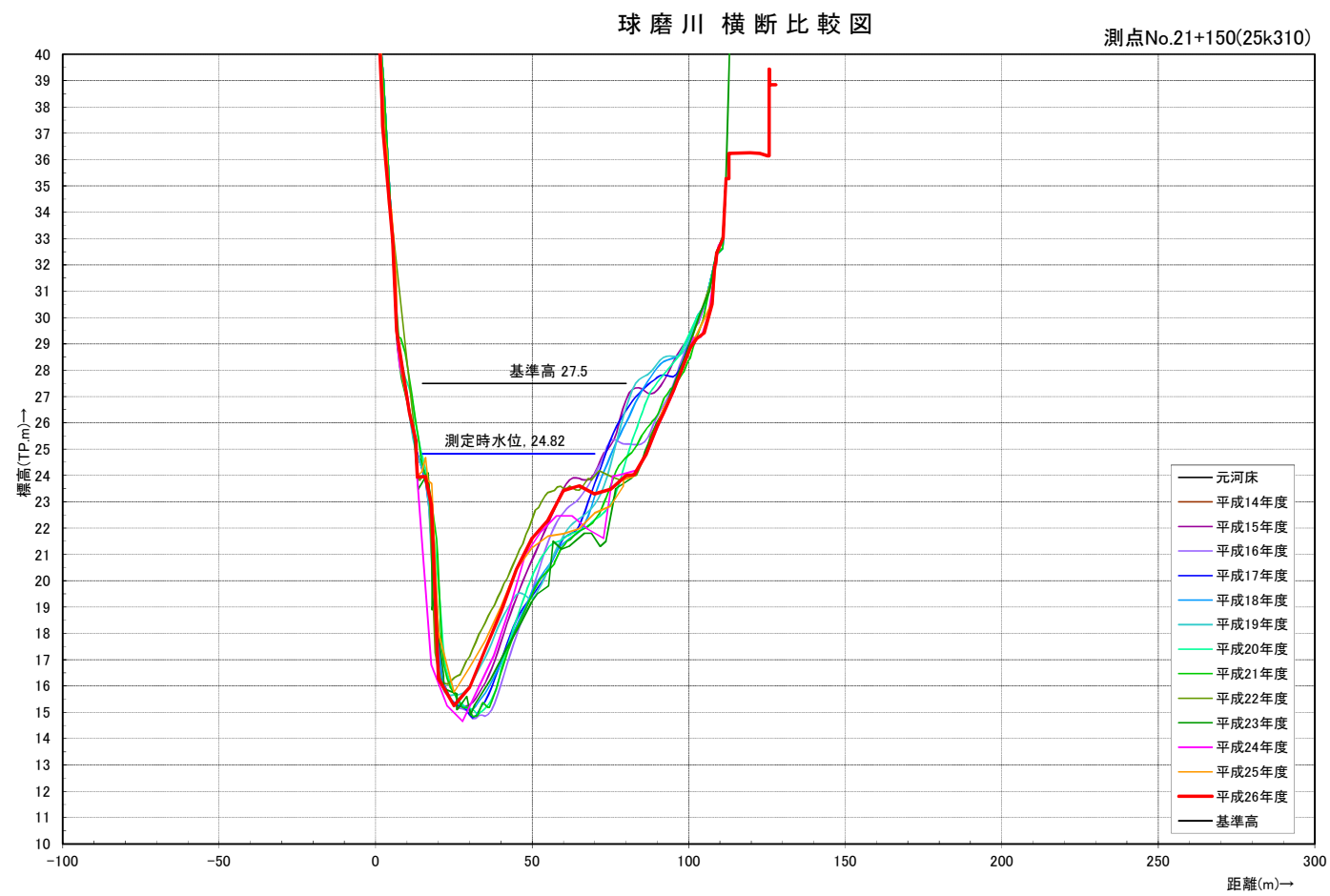
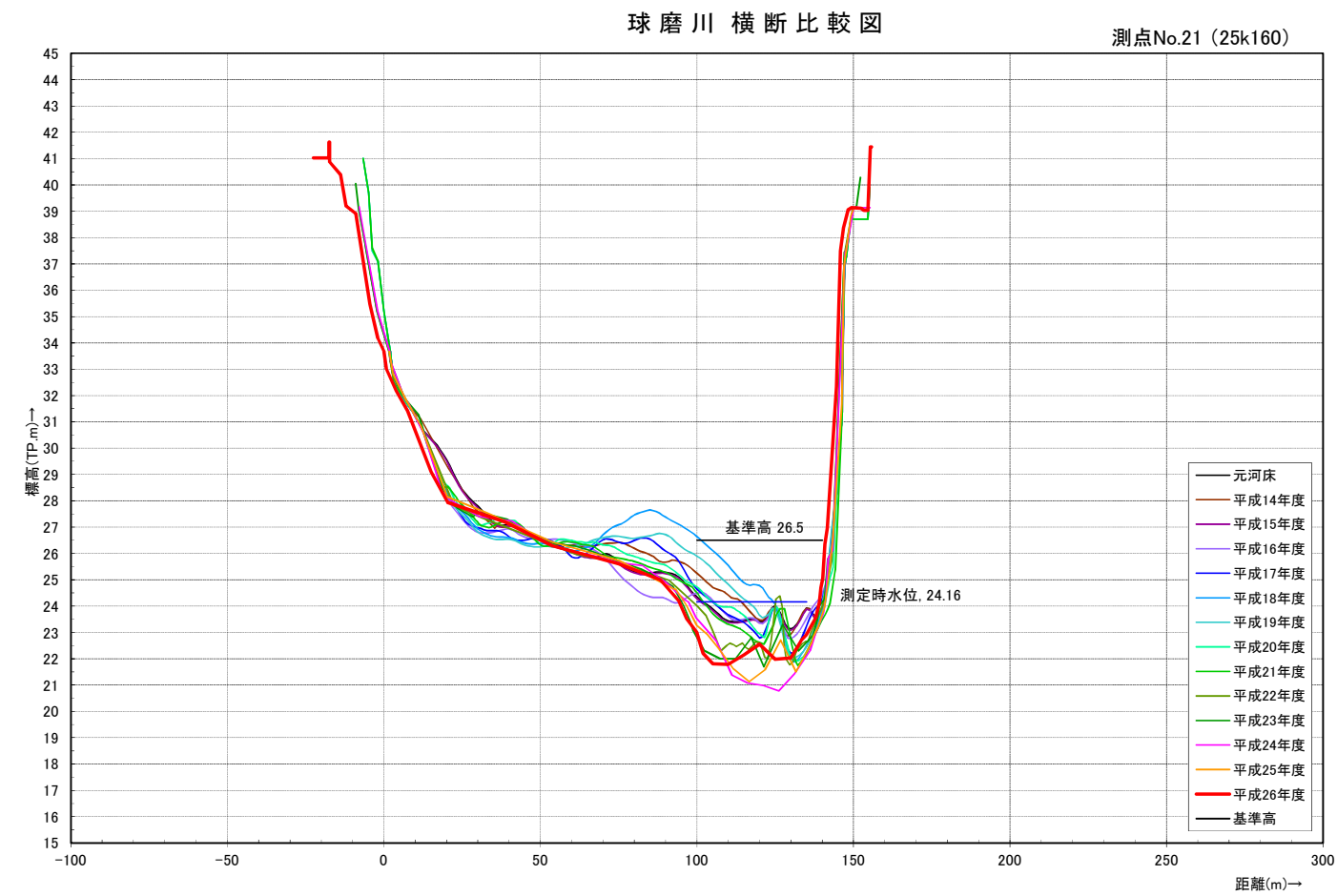
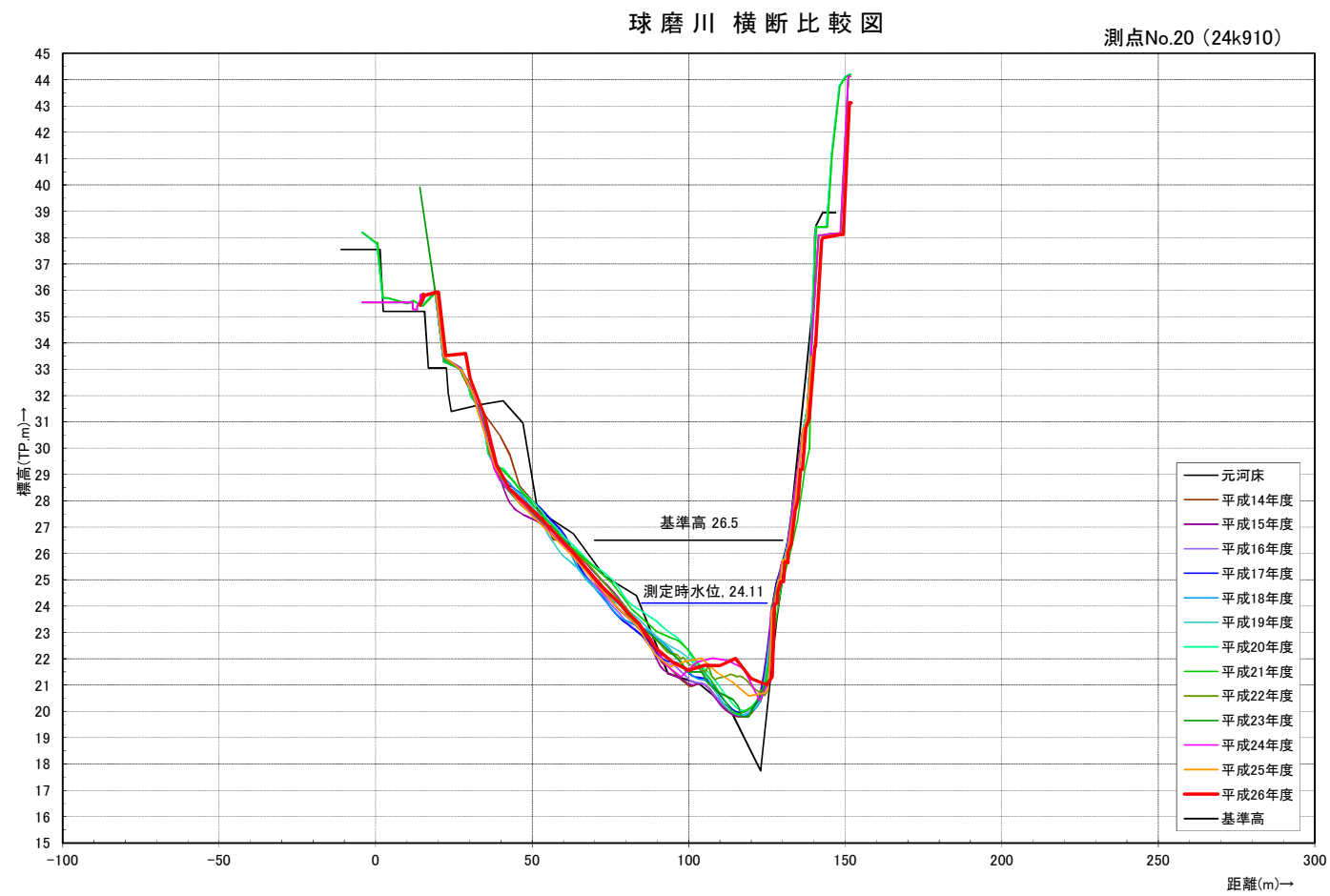


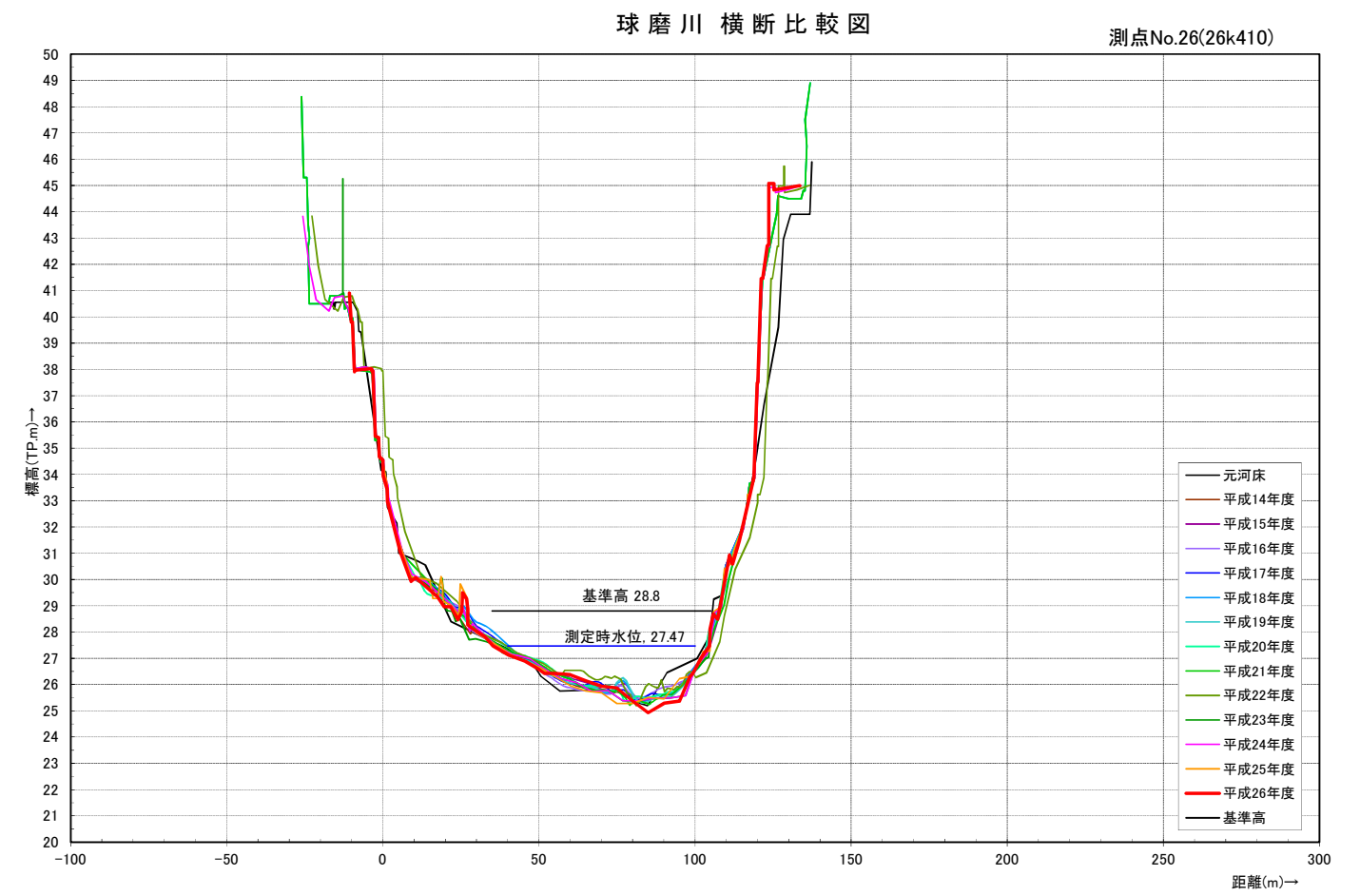
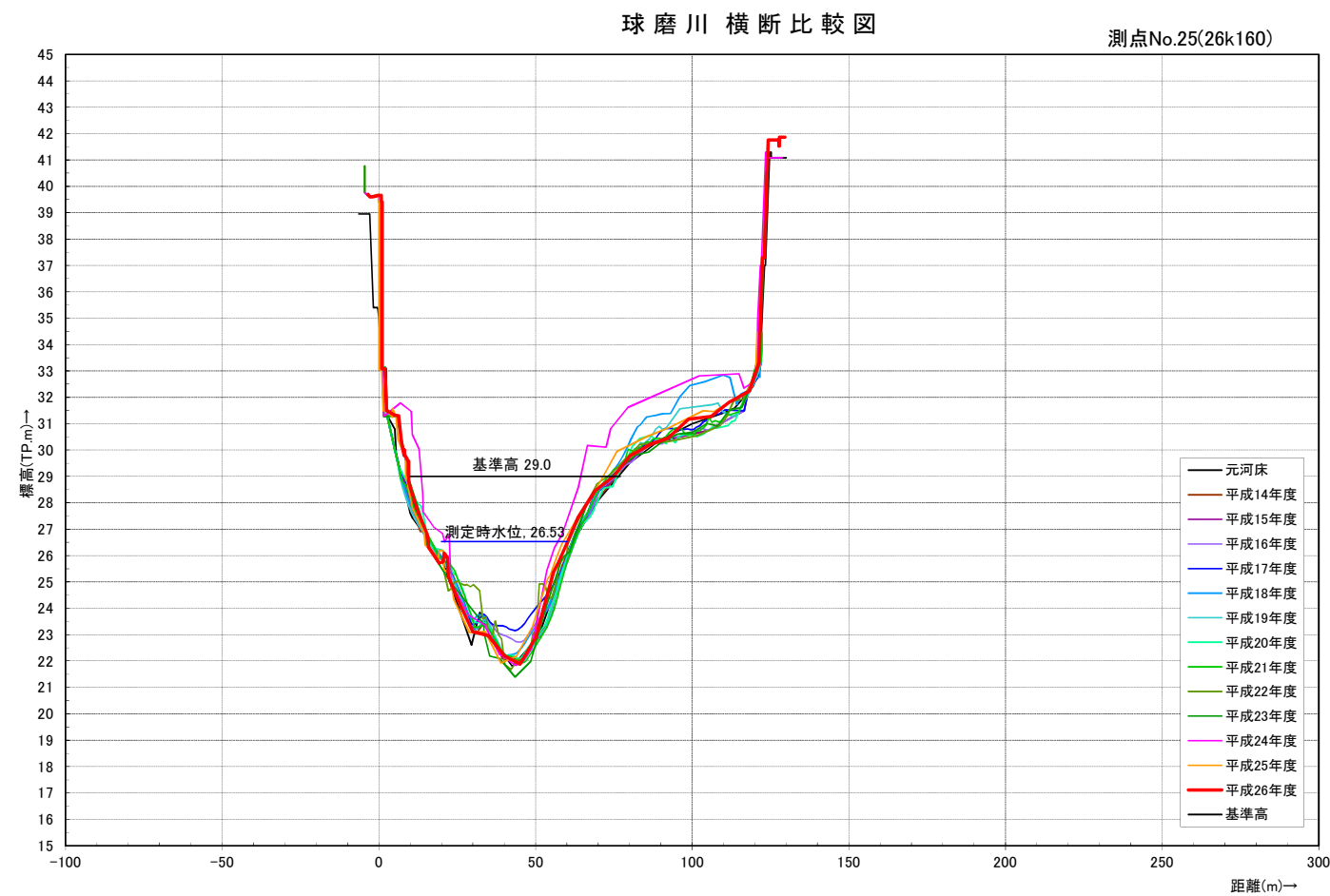
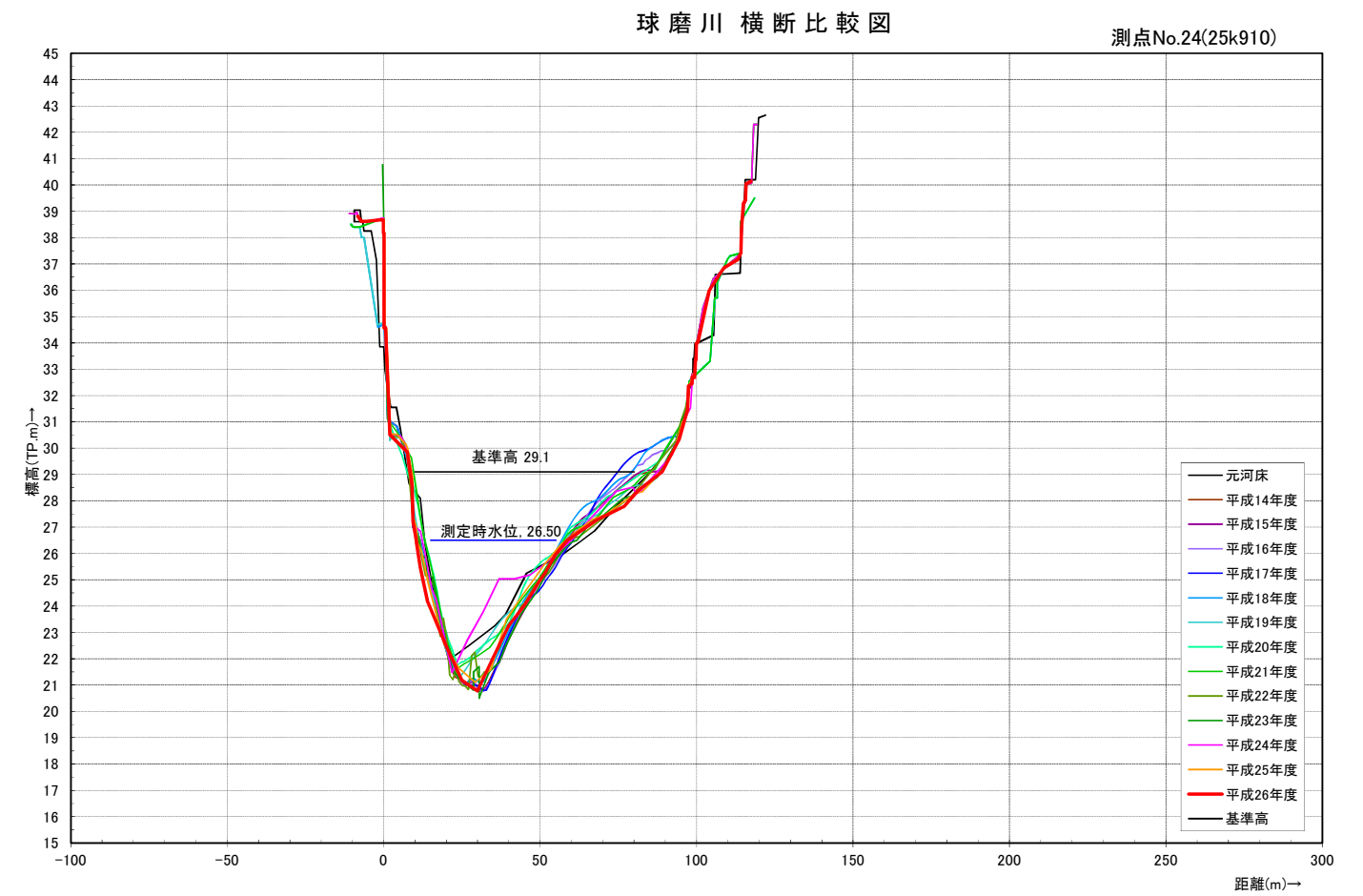
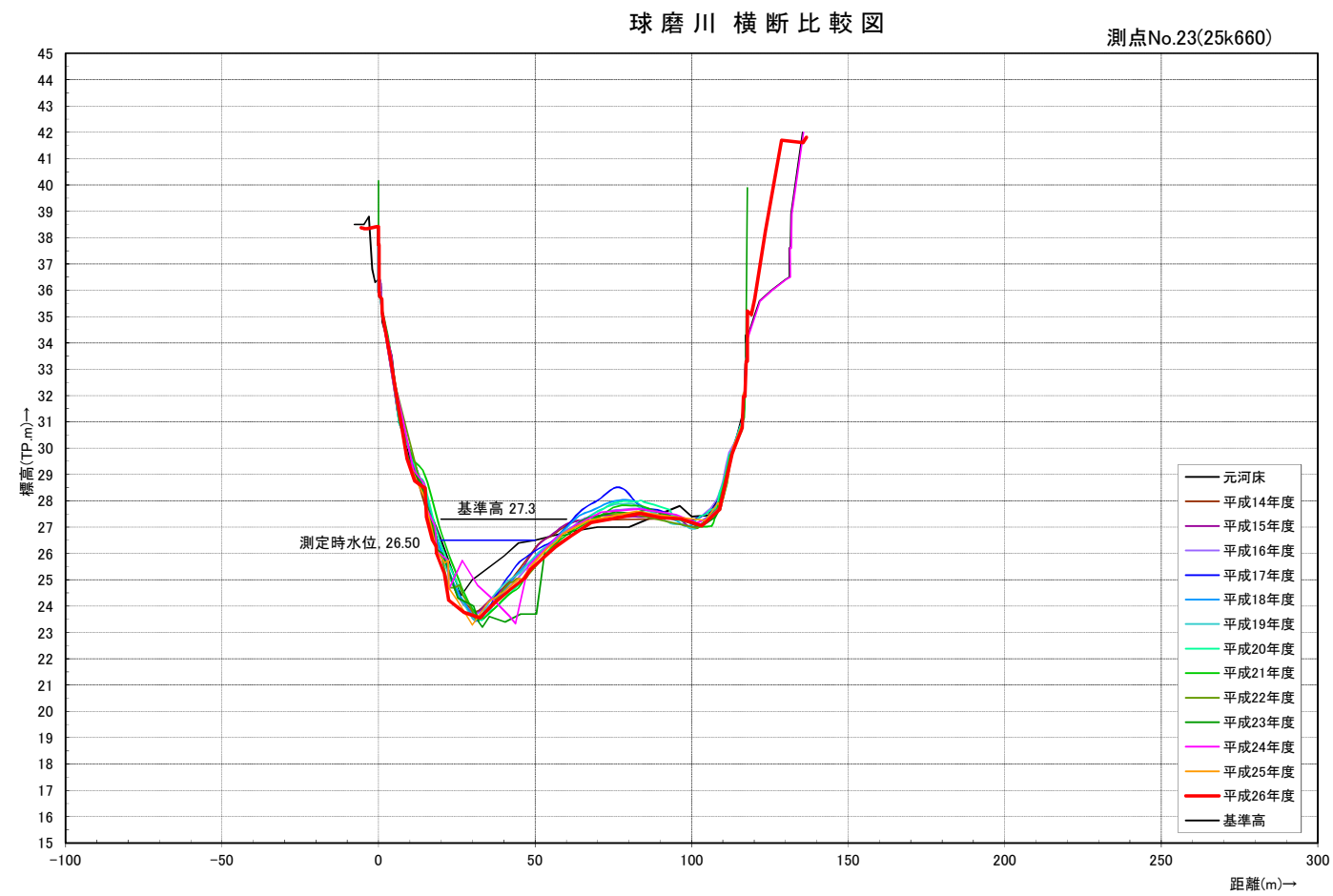


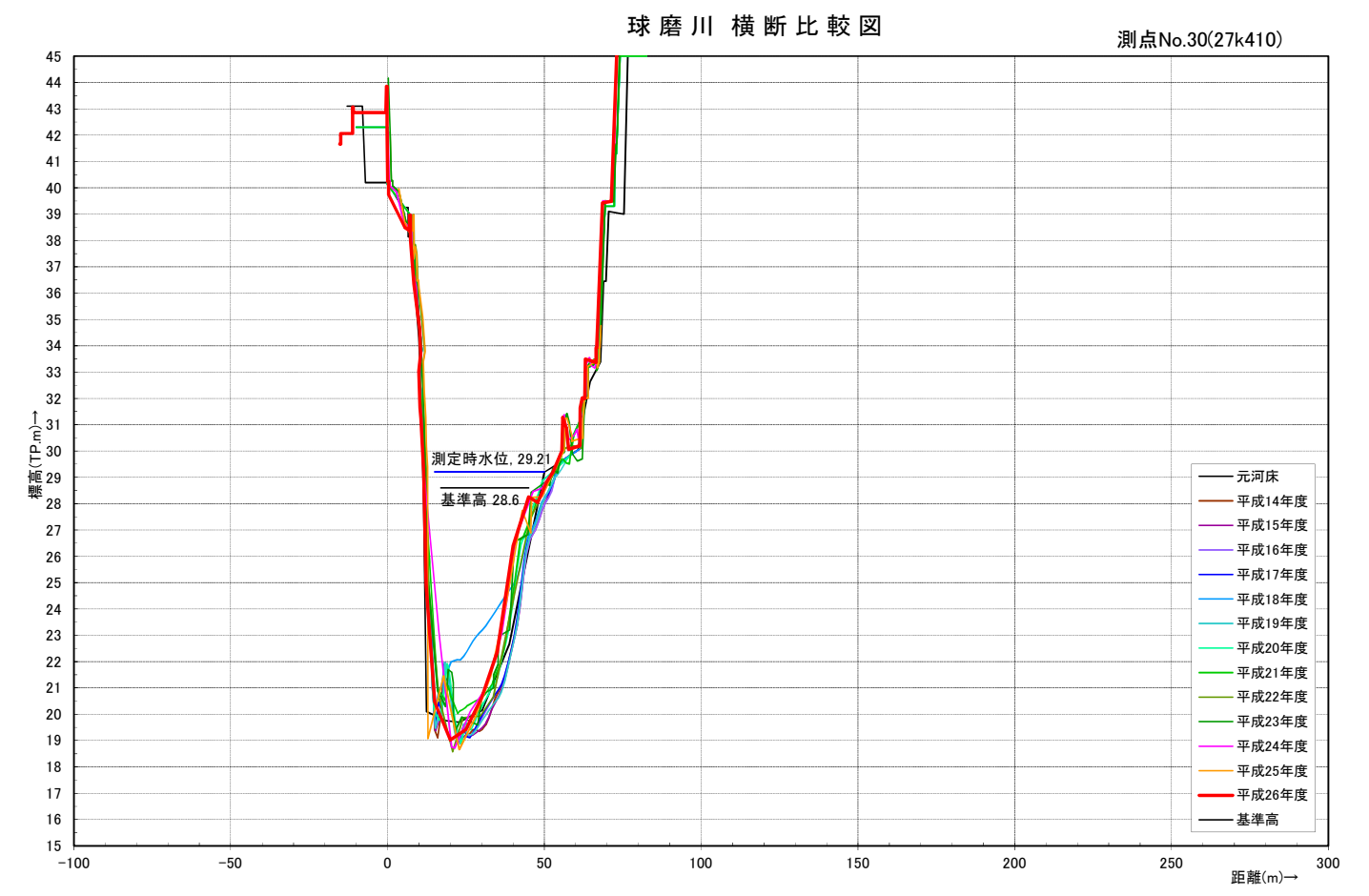
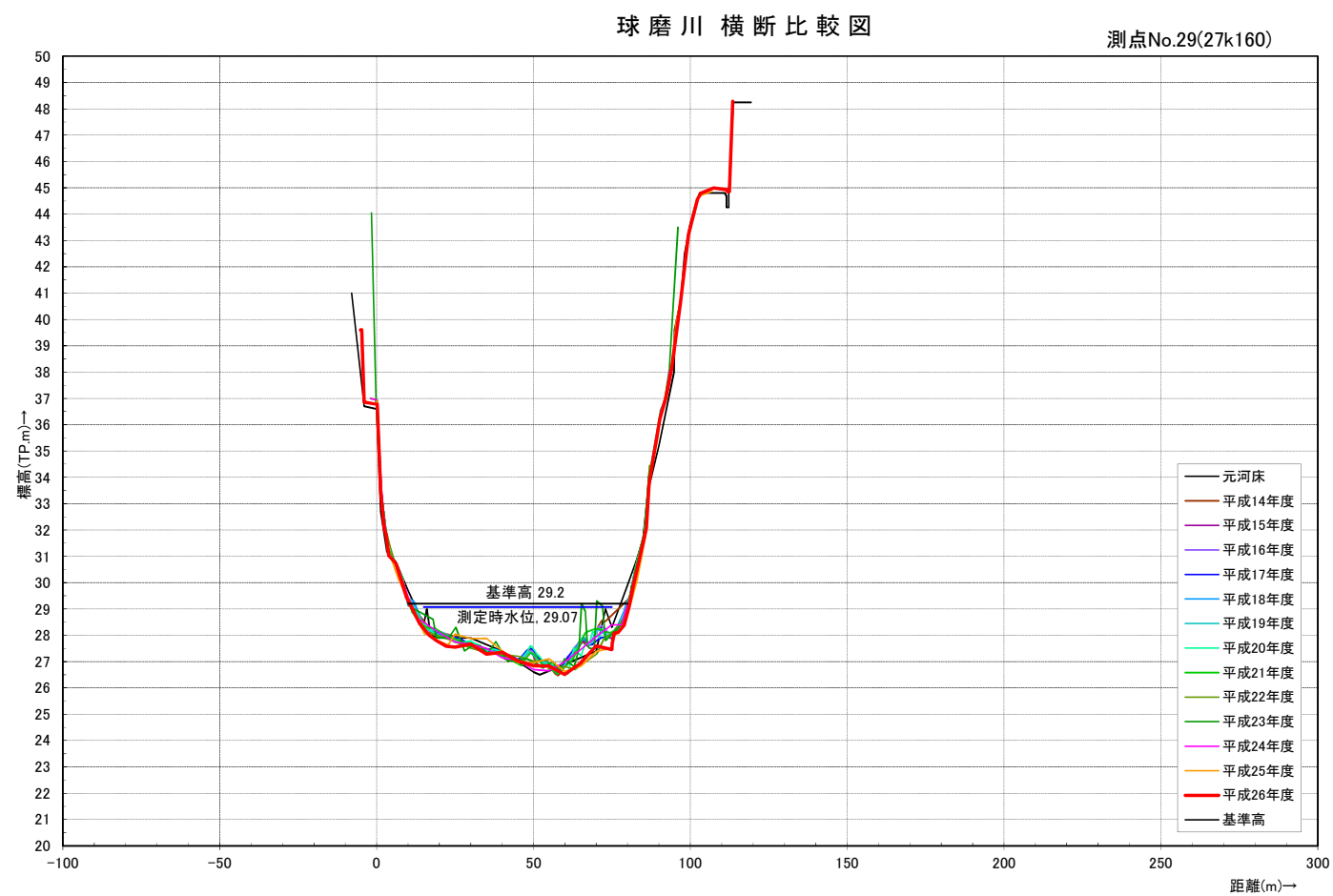
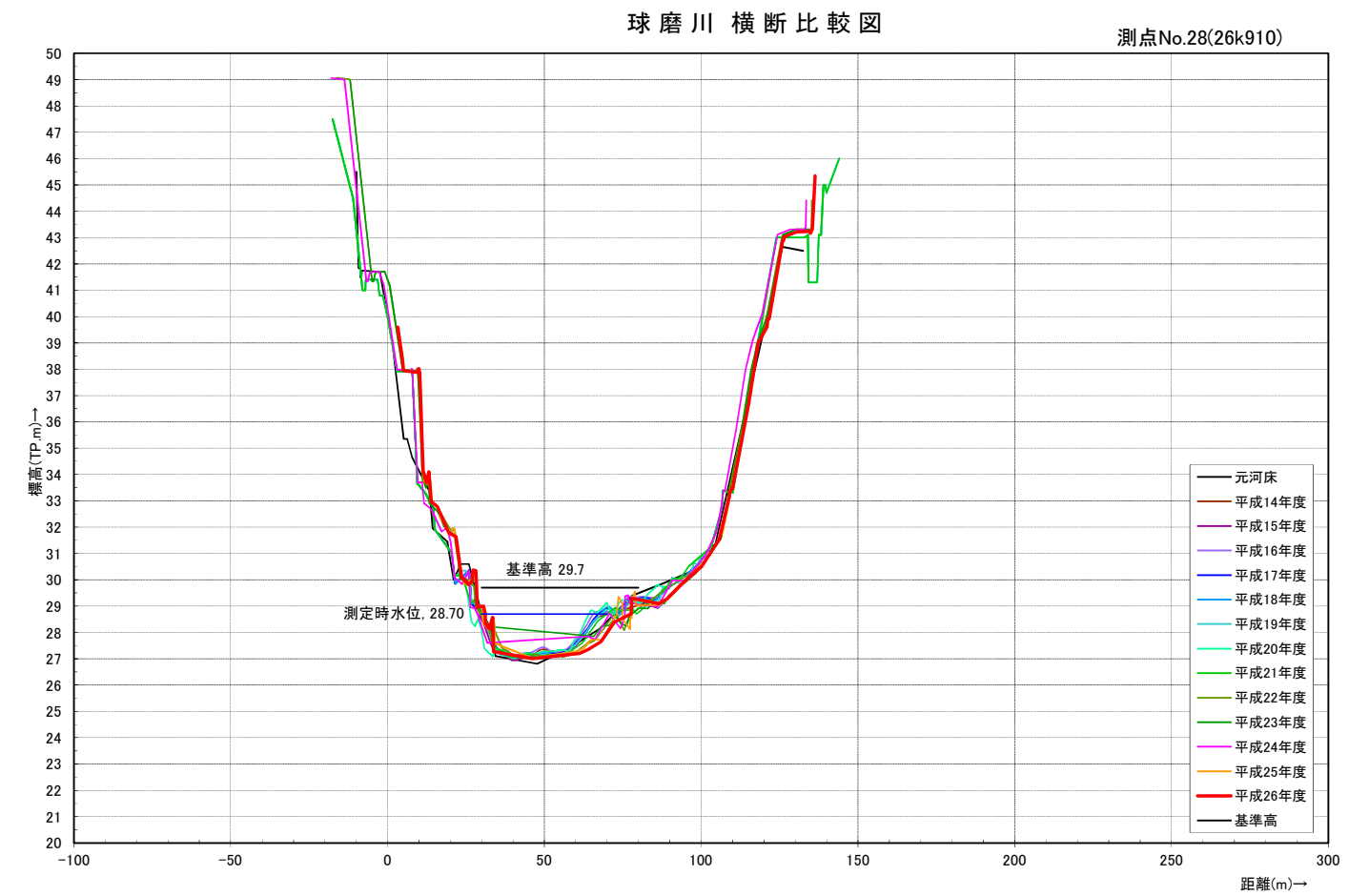
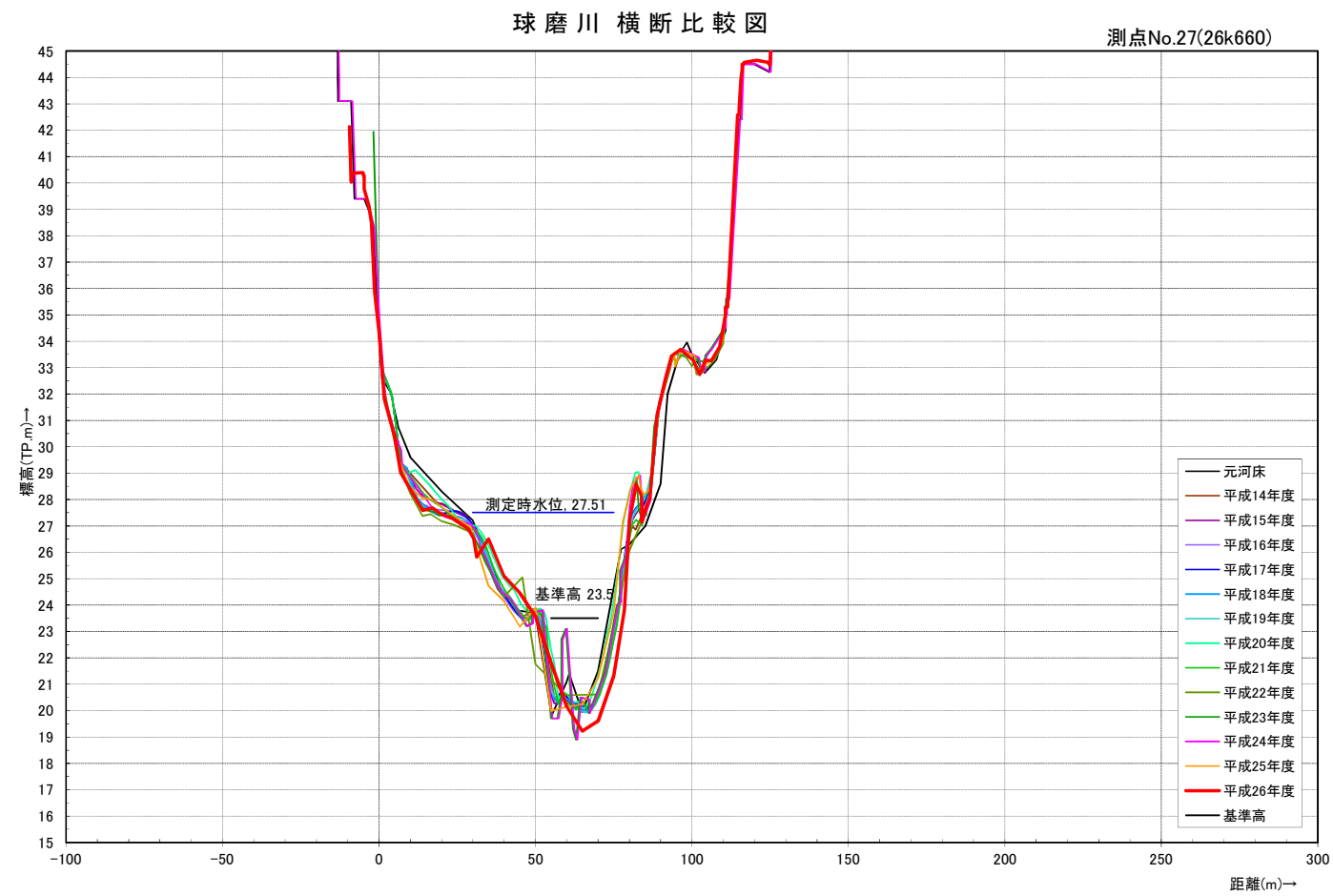


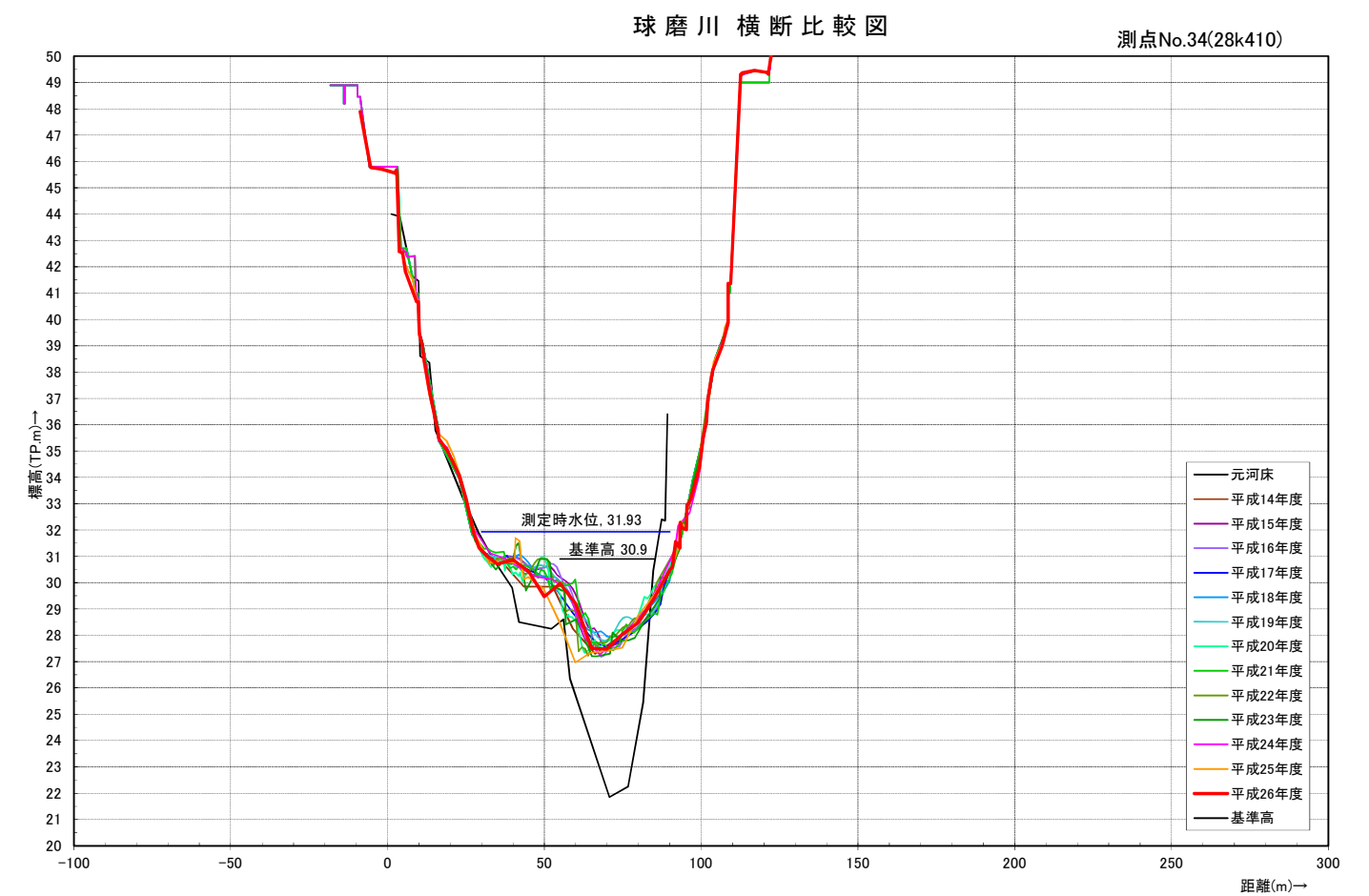
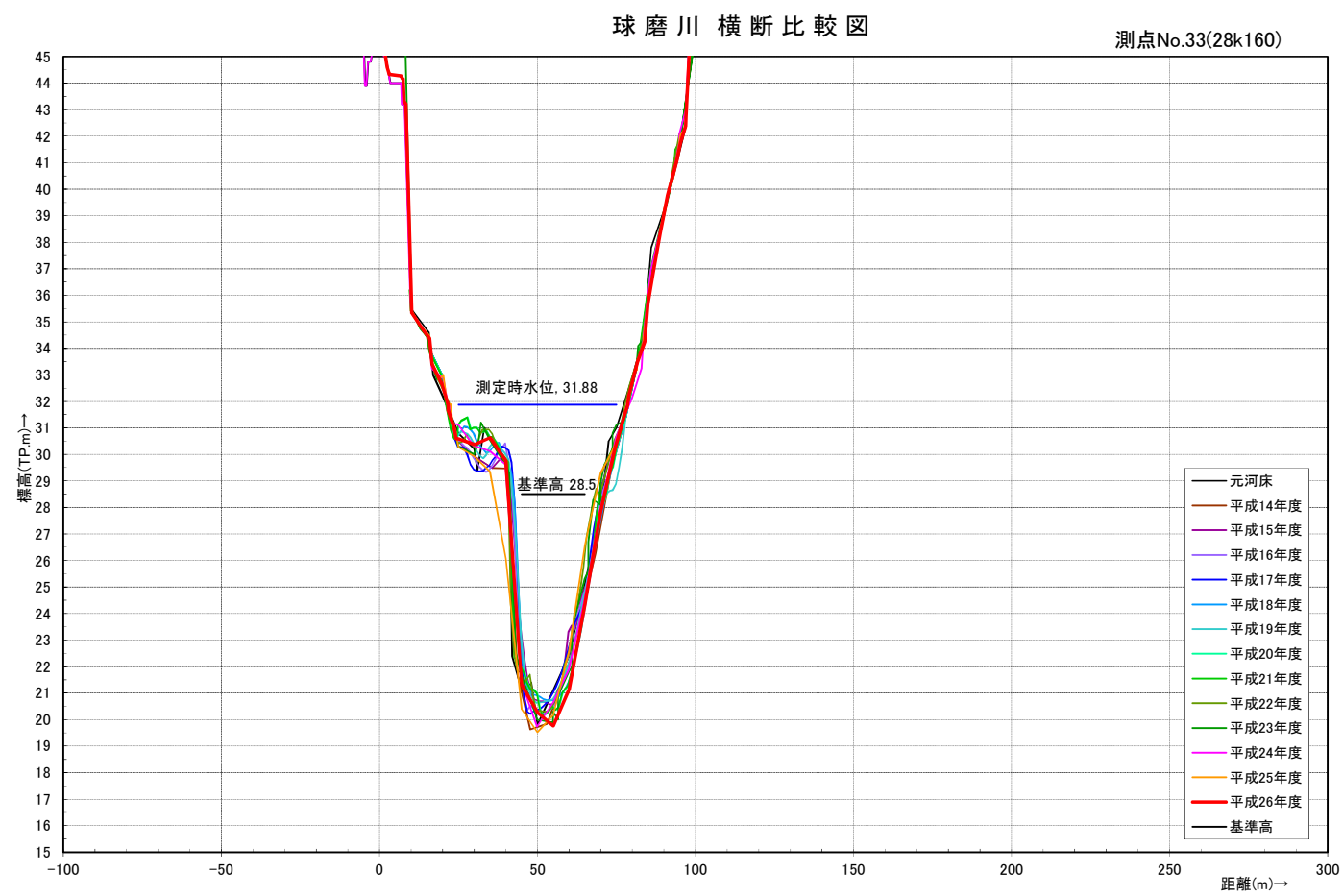
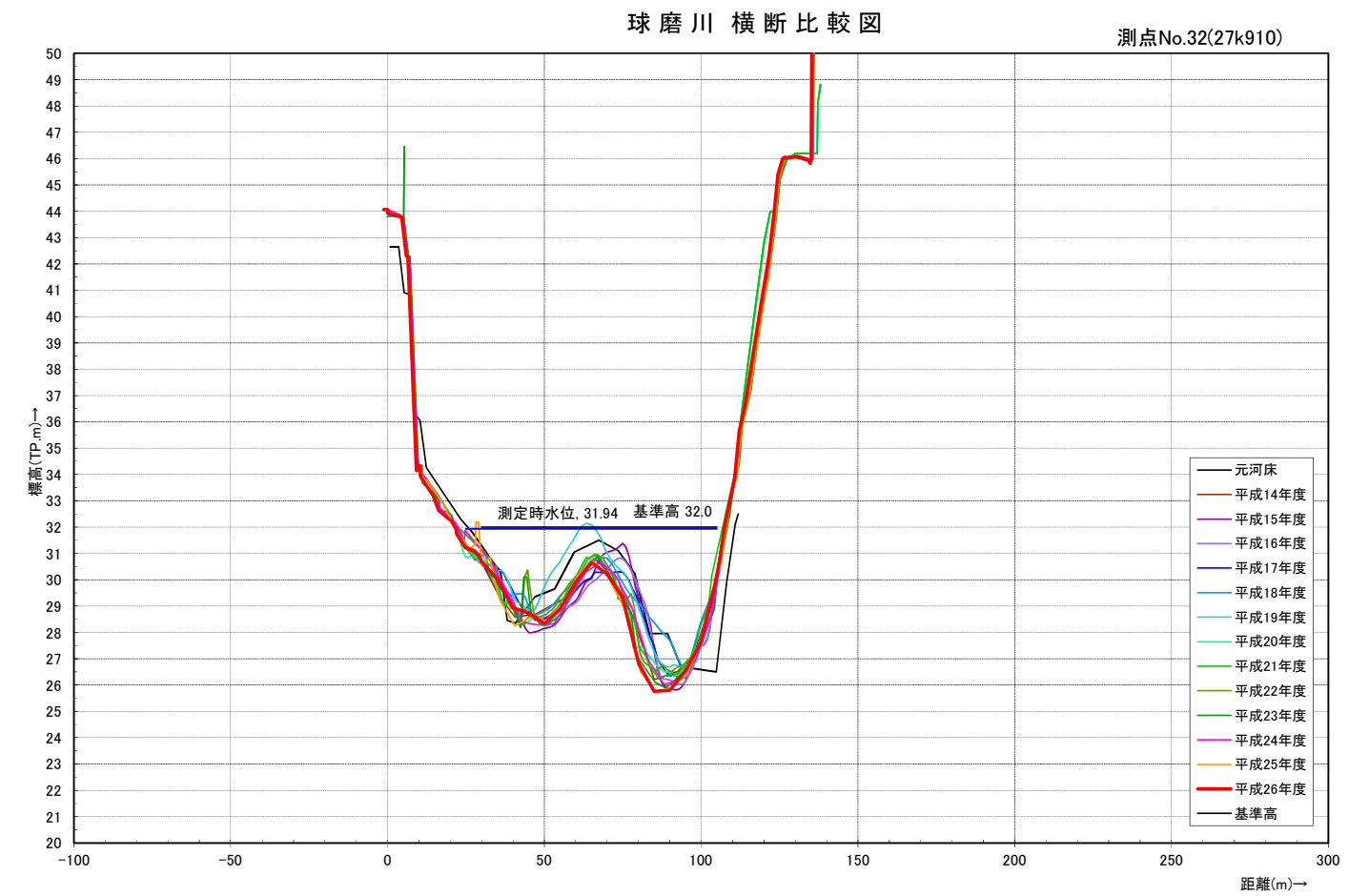
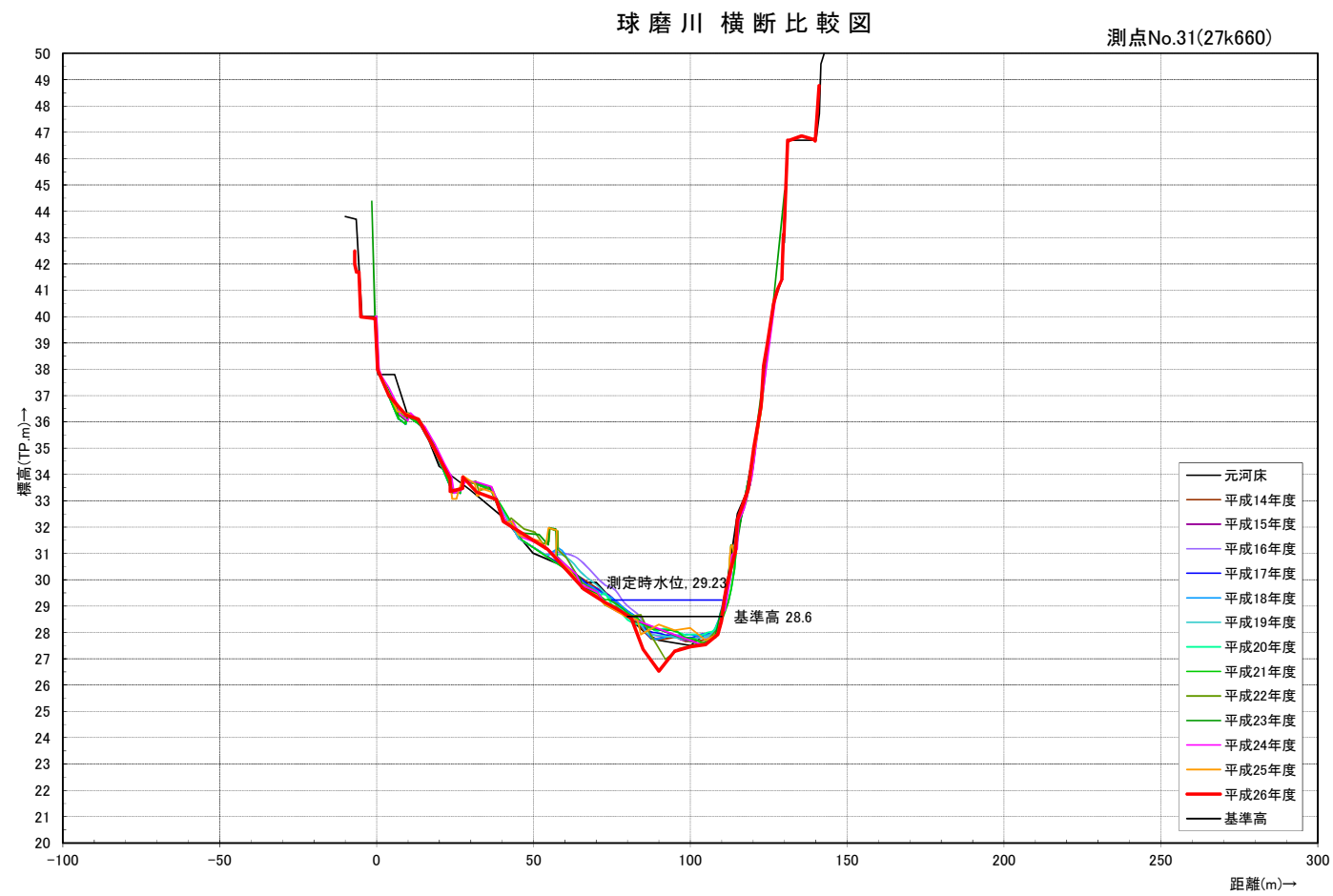


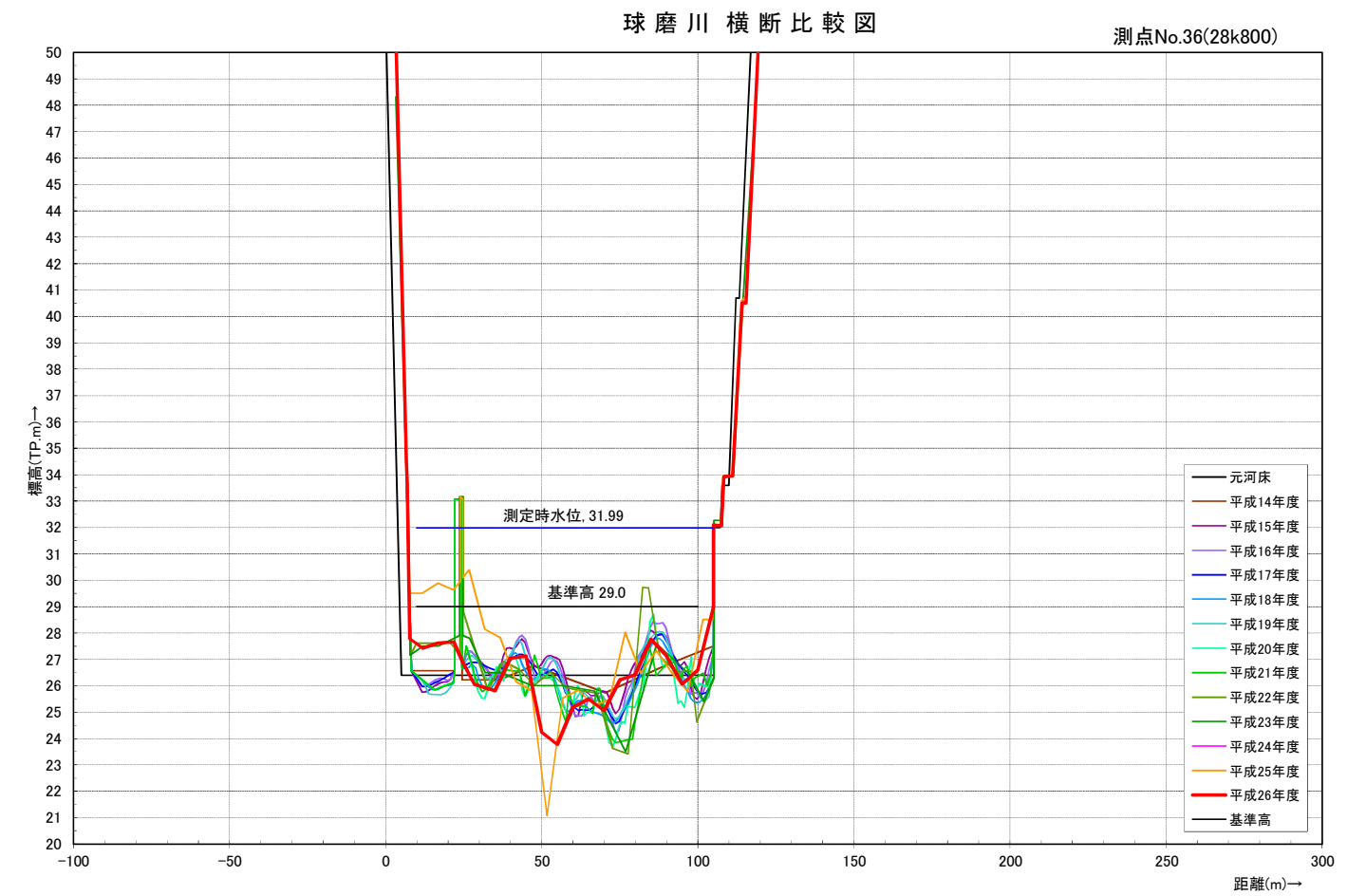
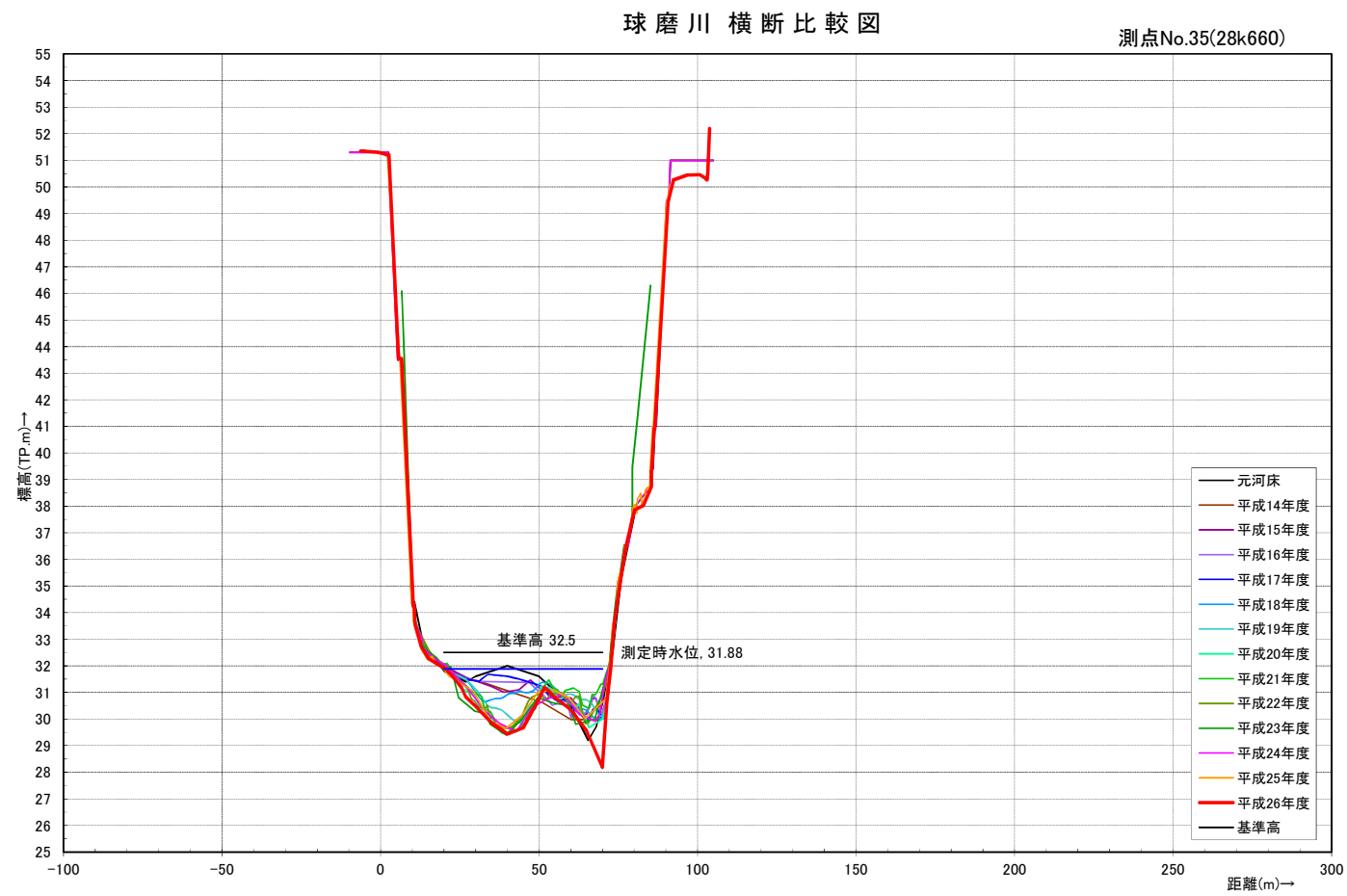


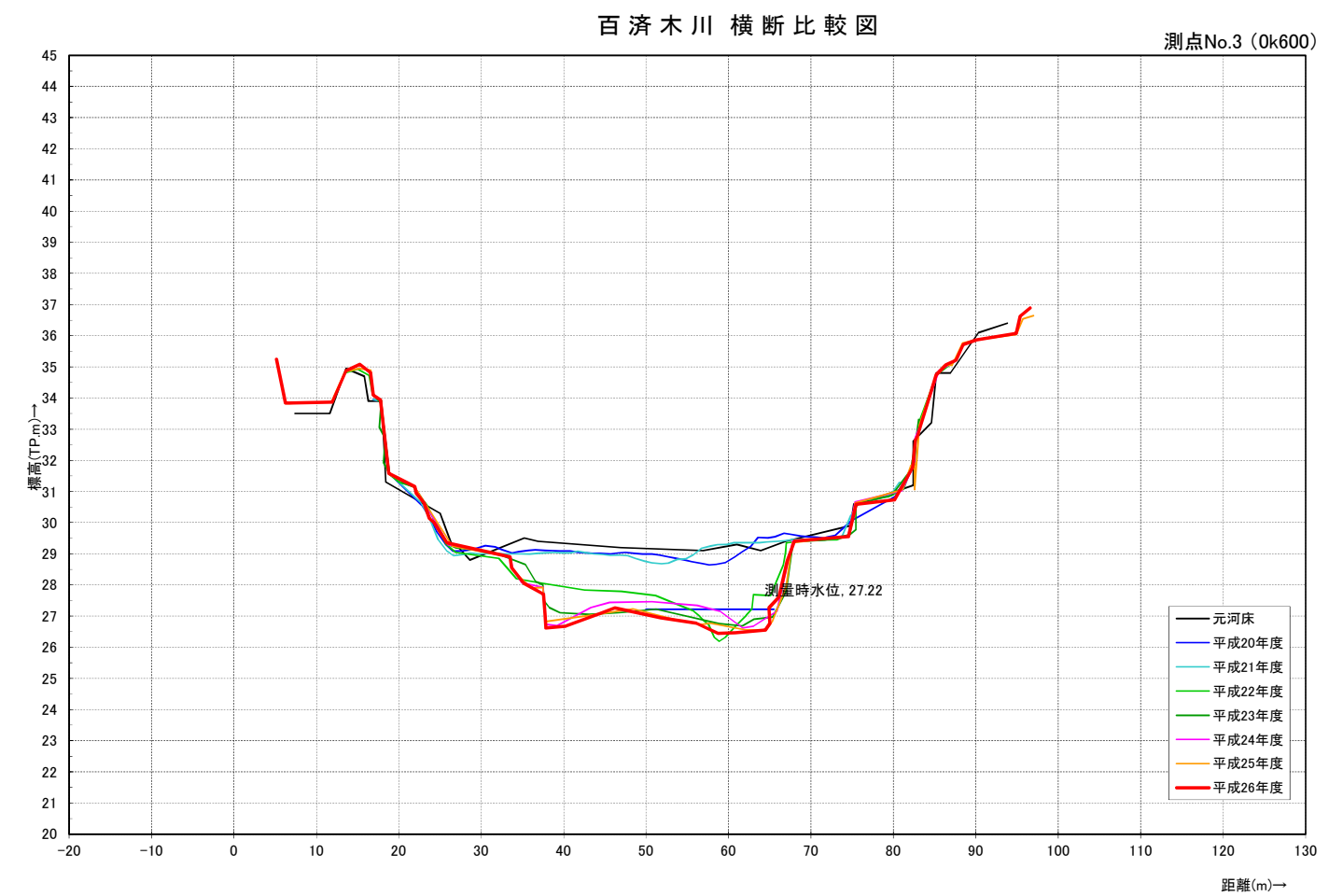
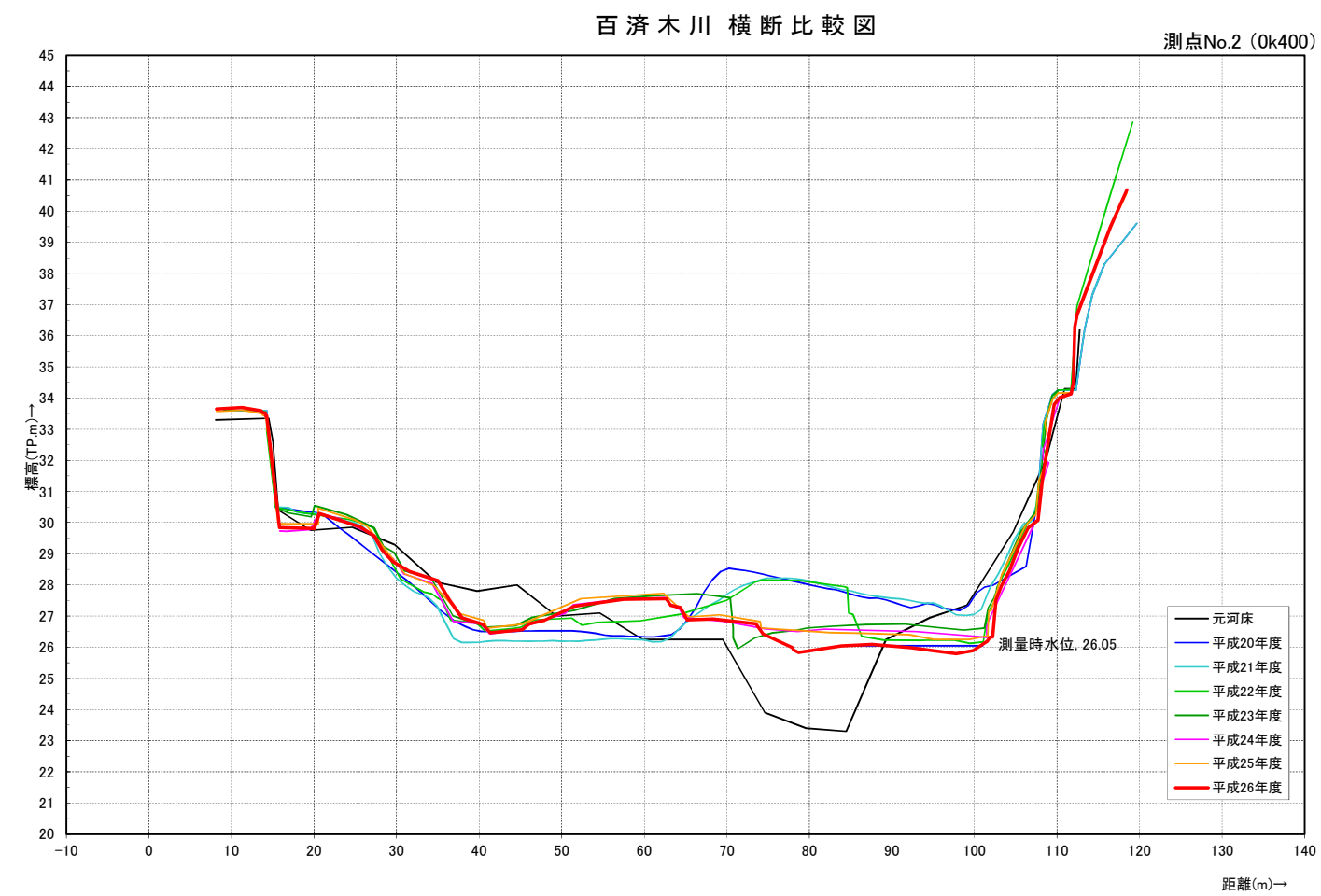
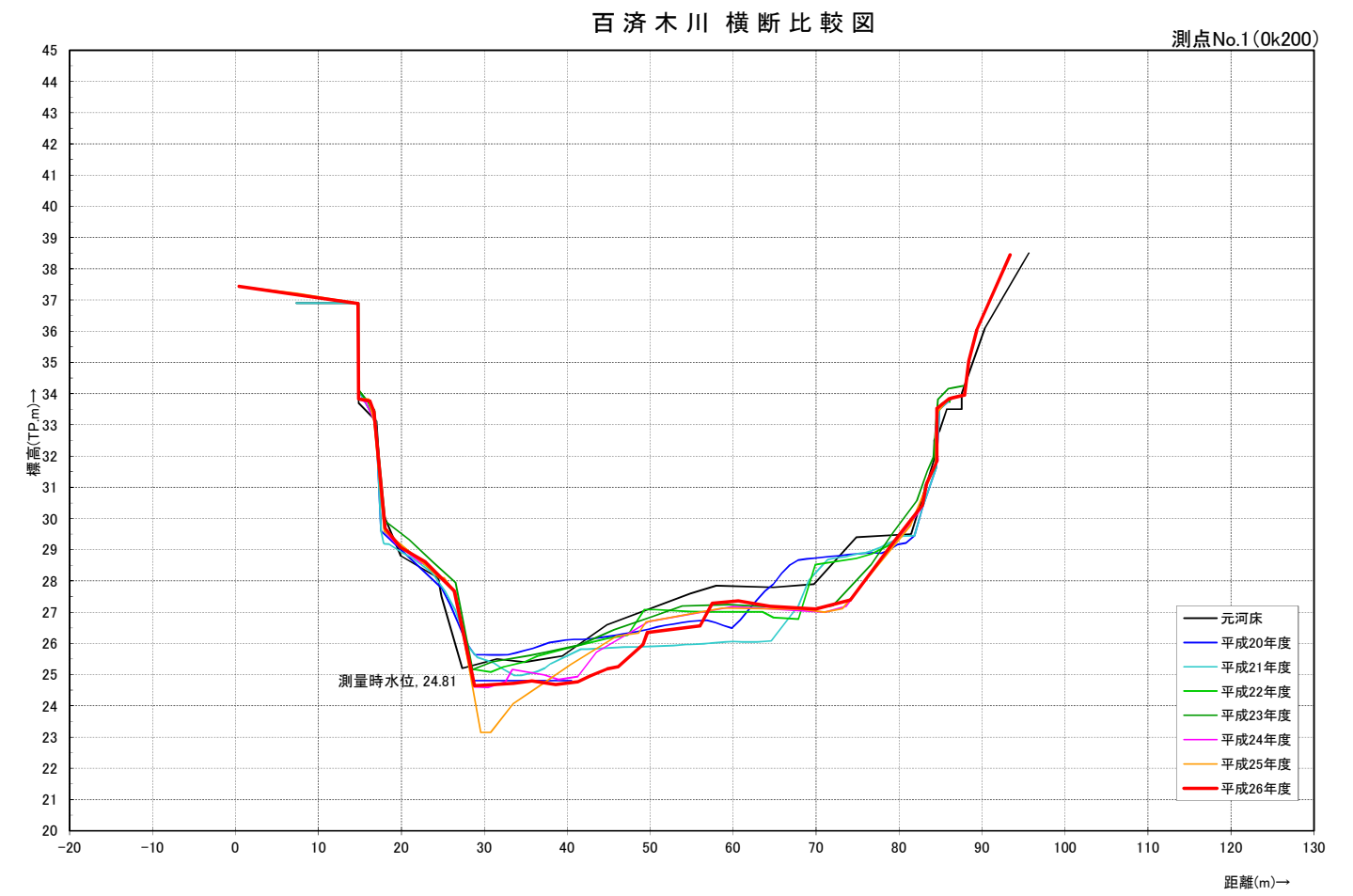
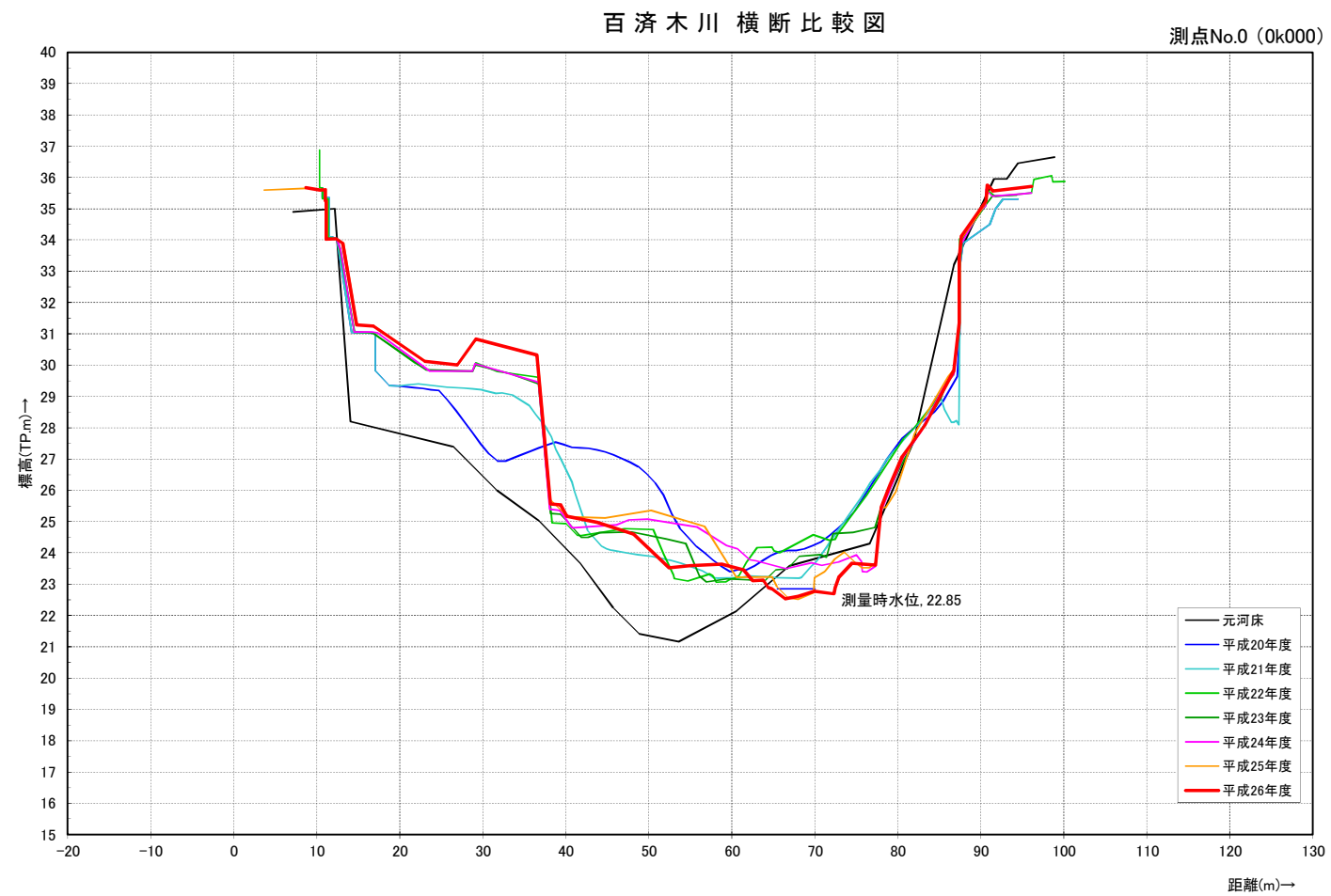


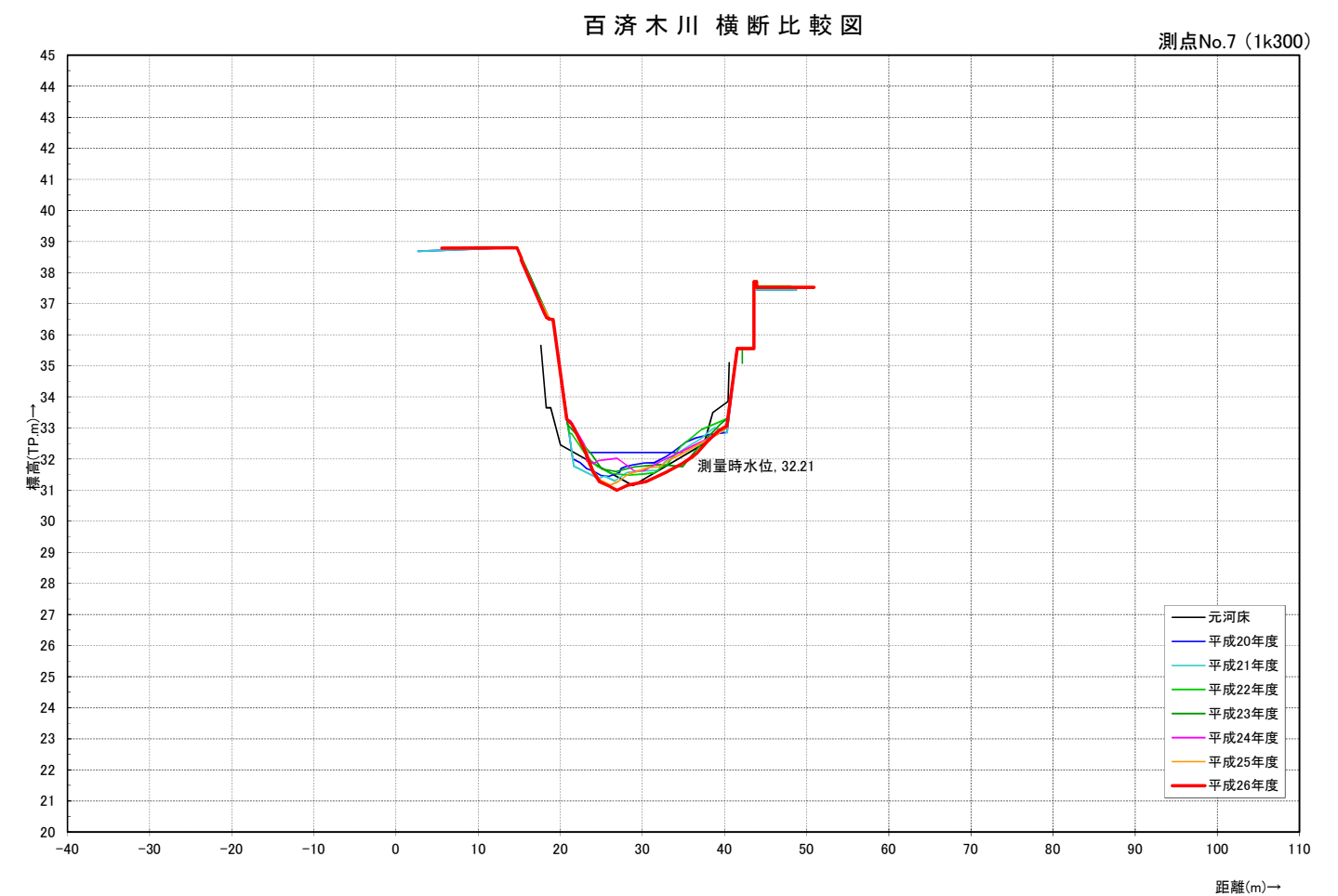
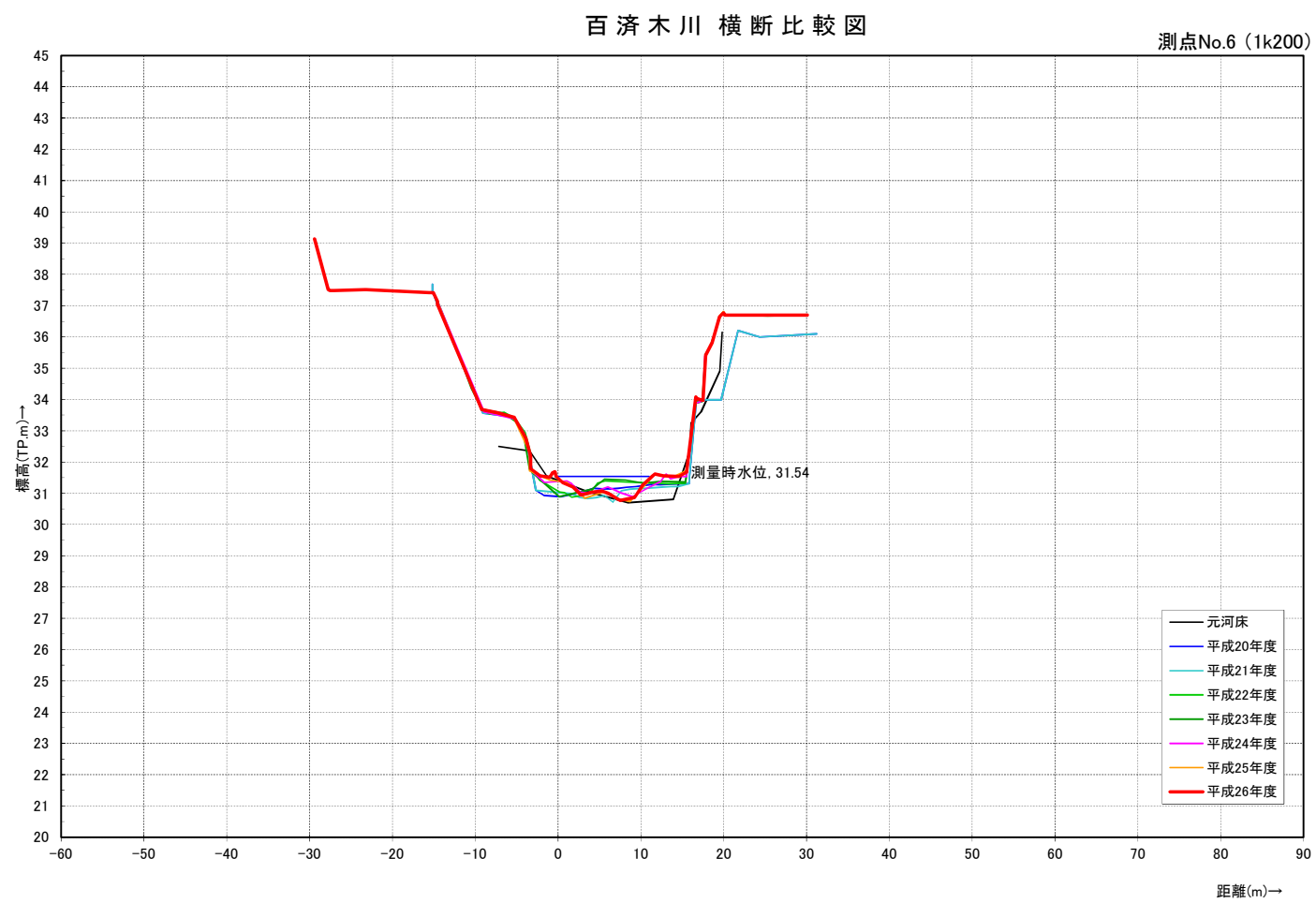
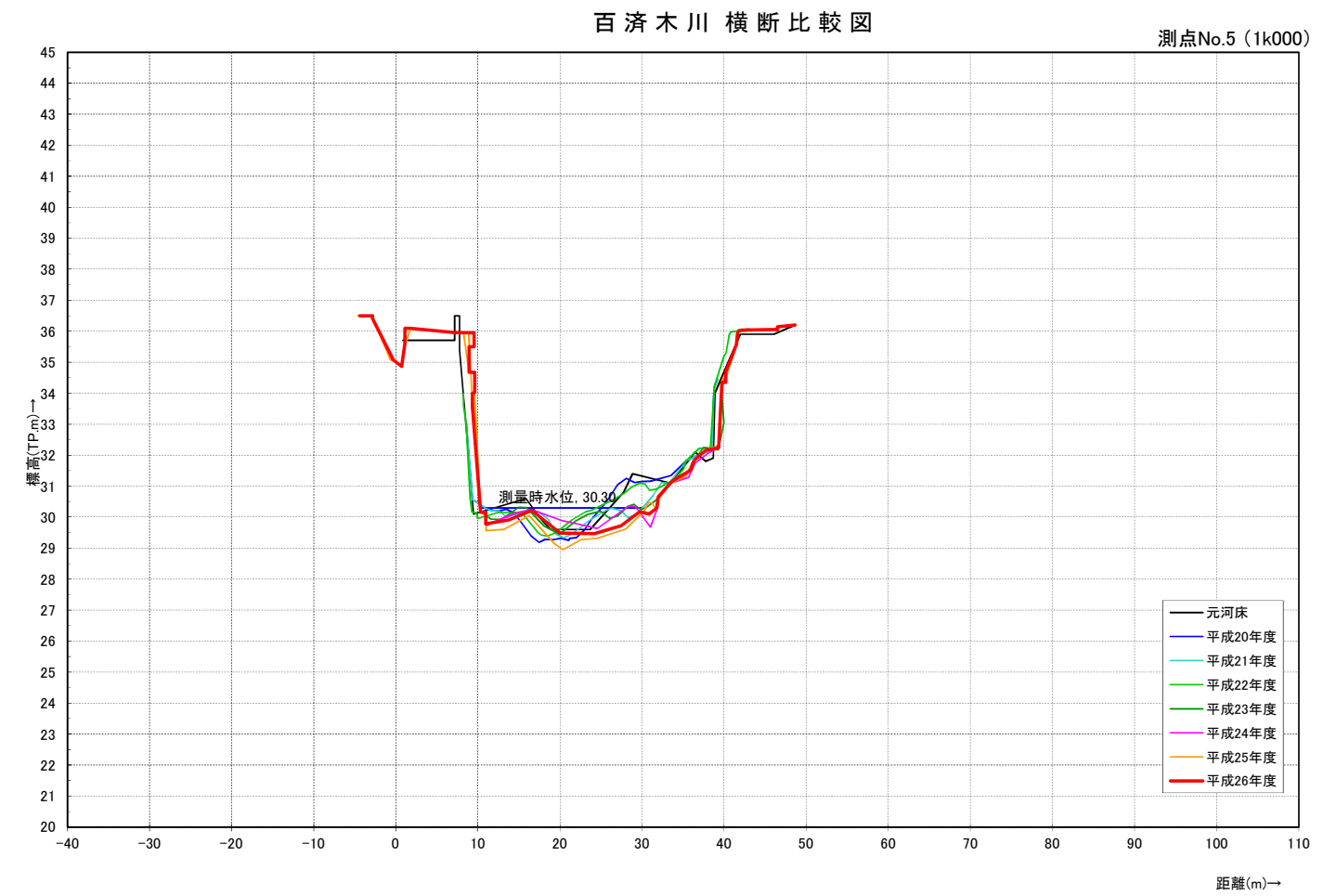
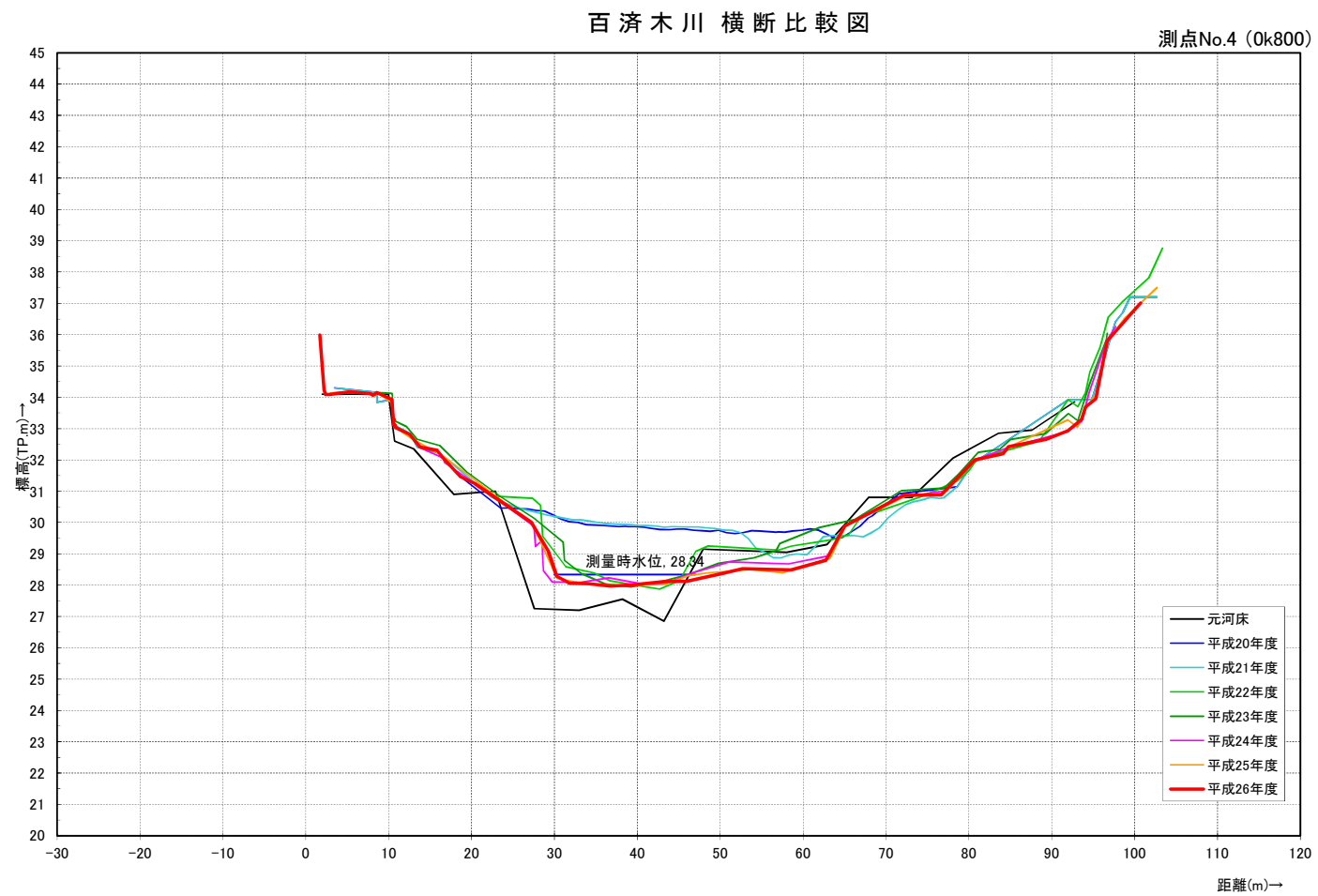










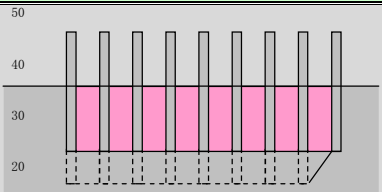
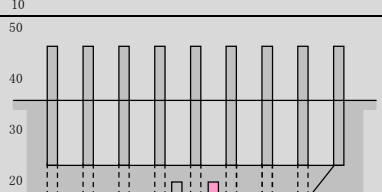
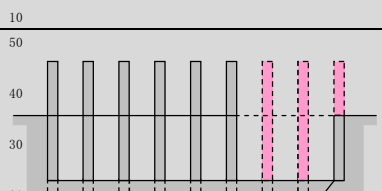
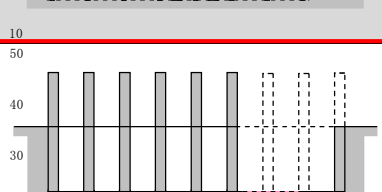
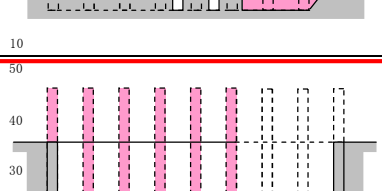
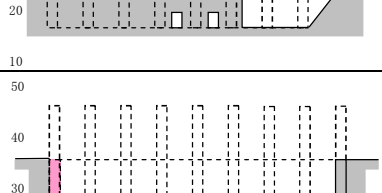
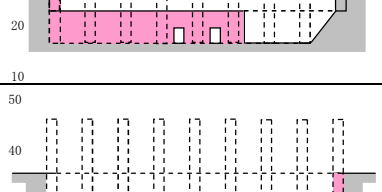


(18) ダム周辺の河川状況の変化予測

18.1 検討の考え方

今年度の段階的な撤去（第3段階：右岸みお筋部撤去）を考慮し、来年度における洪水後の河川形状モニタリングの参考とするため、流量規模別の短期的な河川形状を予測する。

表 18.1.1 ダム撤去段階の模式図

	現撤去計画	備 考
【H23 年度】 ゲート全開		済み
【H24 年度】 第 1 段階 (水位低下設備設置)		済み
【H25 年度】 第 2 段階		済み
【H26 年度】 第 3 段階		工事中
【H27 年度】 第 4 段階		
【H28 年度】 第 5 段階		
【H29 年度】 第 6 段階 (全撤去)		

18.2 今後の段階撤去による短期的な河床形状の予測

18.2.1 検討条件

1) 流況条件及び検討ケース

流況条件としては、平均年最大流量（約 3,000m³/s）規模の実績洪水（H24 年 6 月 21 日洪水：ピーク流量：3,332 m³/s）波形を基本に、下図のように各流量規模別（1,500m³/s 規模、3,000m³/s 規模、5,000m³/s 規模）のモデル流量波形を作成した。

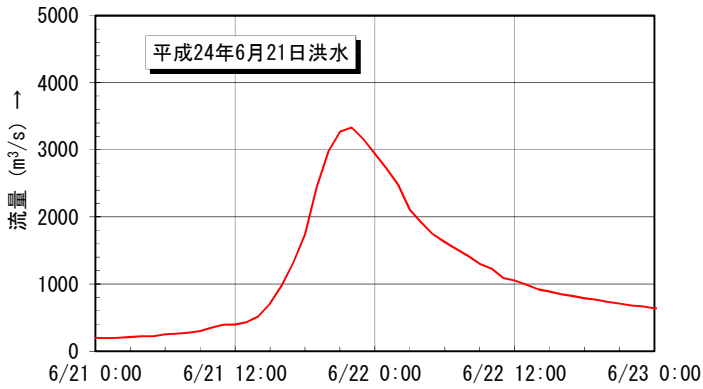


図 18.2.1 平均年最大規模洪水の抽出

検討ケースとしては、今年度の右岸みお筋部撤去（第3段階撤去）後、各流量規模（3 ケース）の洪水を与えるものとする。

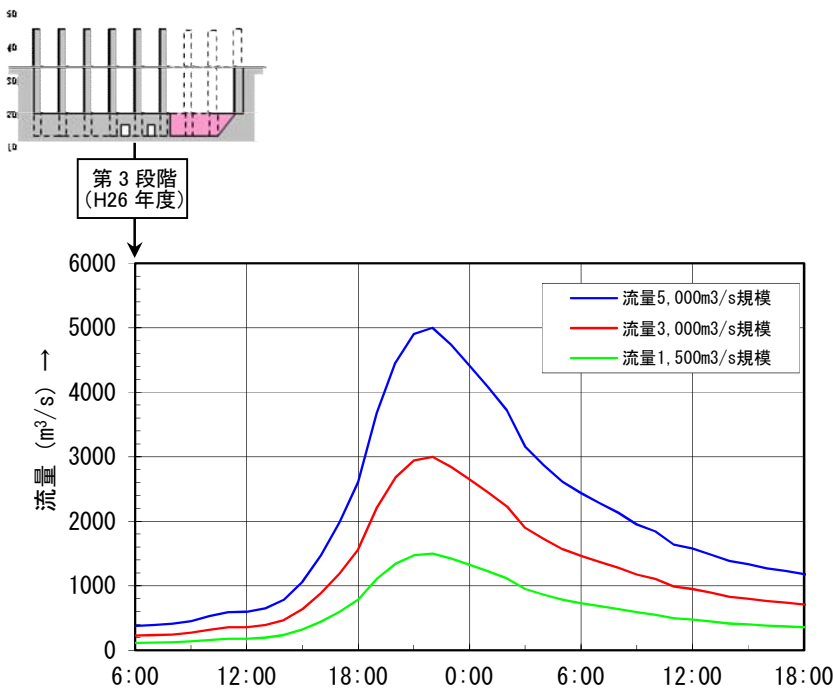


図 18.2.2 流量規模別モデル流量波形（3 ケース）

2) 河道条件

対象とする河道条件としては、平成 26 年度工事（第 3 段階撤去）後河道とし、平成 26 年度末に実施された横断測量成果をもとに、工事後断面を考慮して補正を行った河道断面を設定した。

設定した平成 26 年度工事後河道の横断図を図 18.2.3 に、工事後河道をもとに各メッシュ（既往モデル）に河床高を割り当て作成した河床高コンター図を図 18.2.4 に示す。

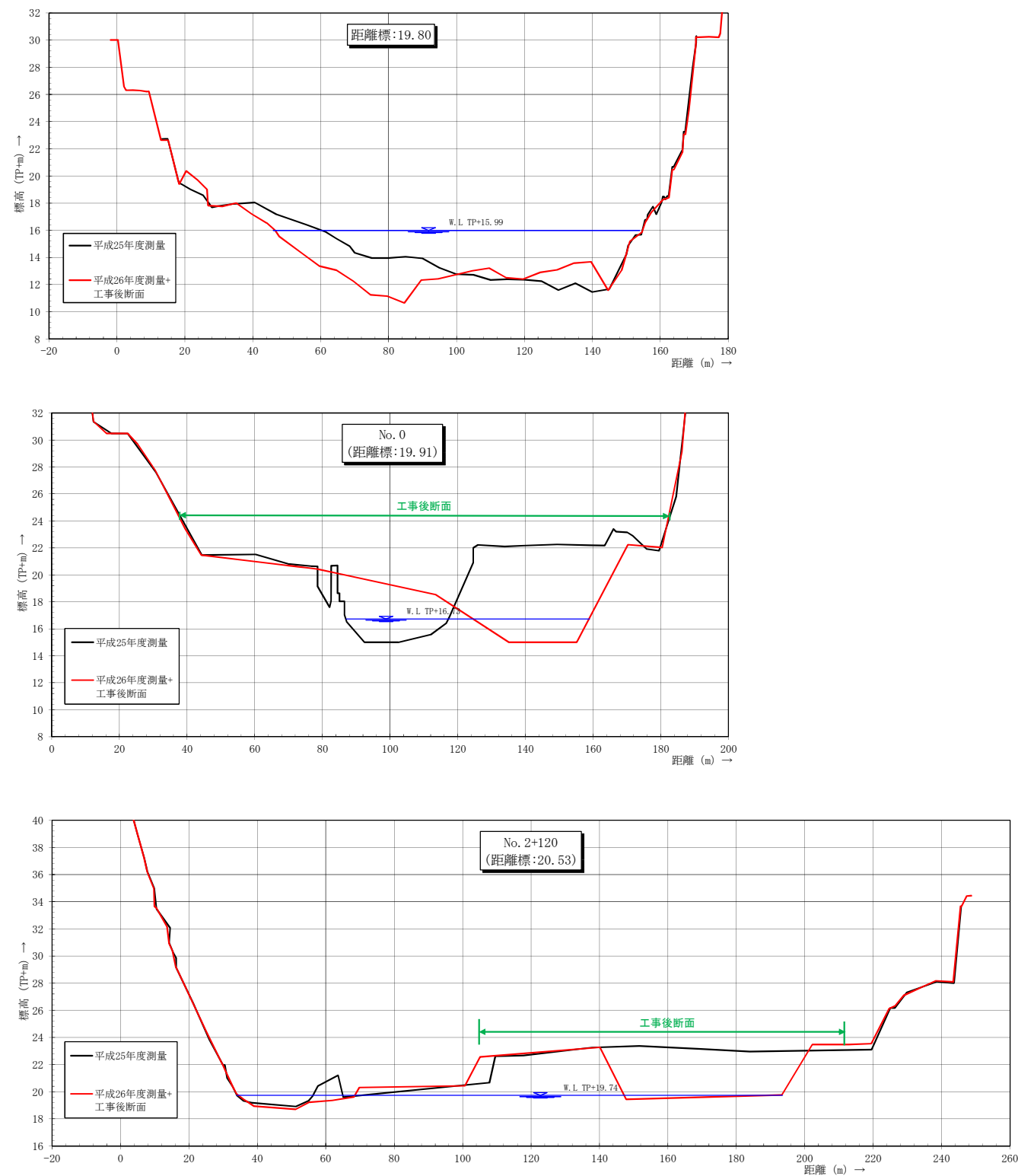


図 18.2.3 河道断面の設定

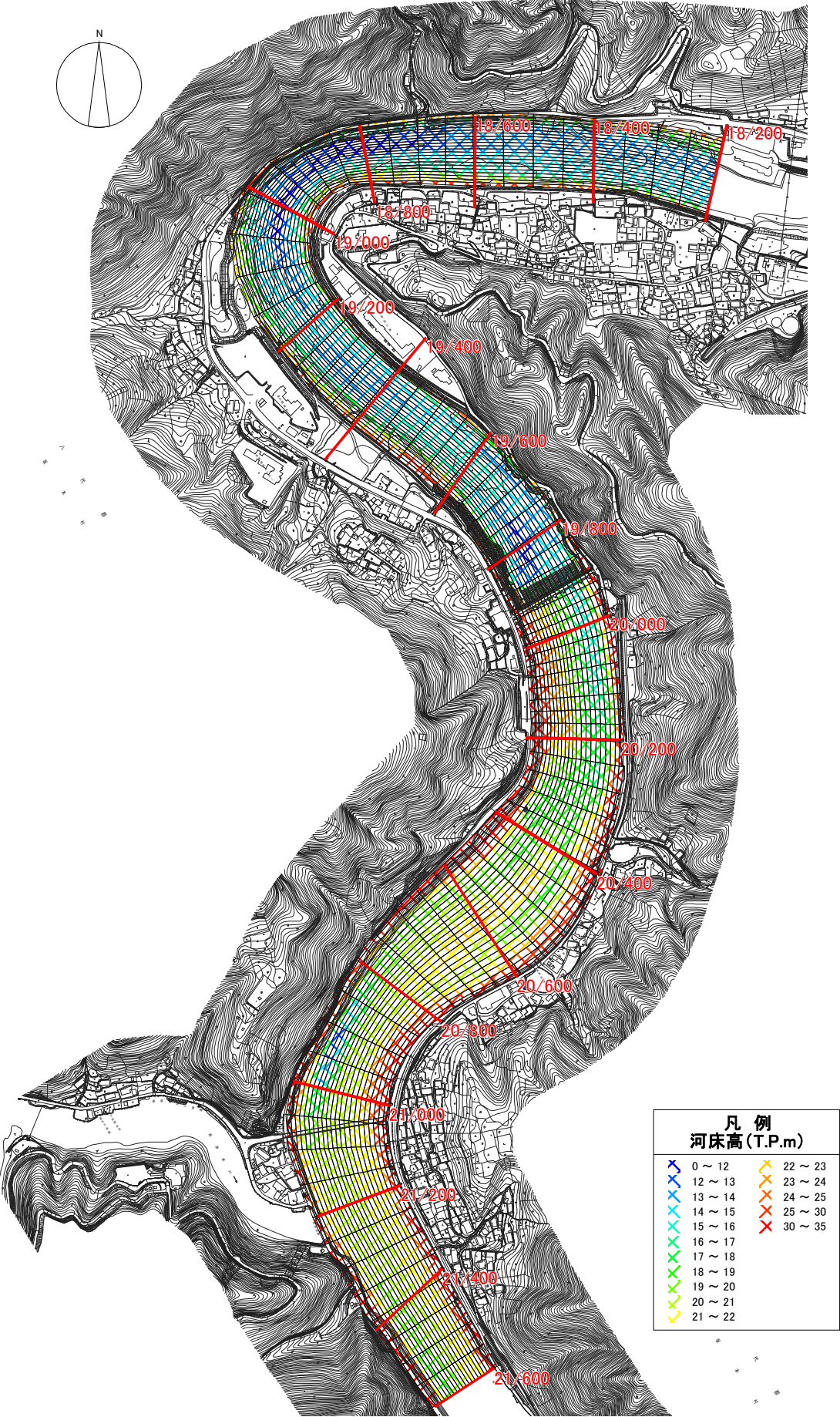


図 18.2.4 メッシュ分割及び河床高コンター図（平成 26 年度工事後河道）

3) シミュレーション条件

今後の撤去段階による短期的な予測におけるシミュレーション条件は、流況条件、撤去条件等を除き、将来的な撤去後河川形状予測の考え方を基本する。予測シミュレーション条件を下表に示す。

表 18.2.1 予測シミュレーション条件一覧表

項 目		予測シミュレーション条件		備 考
対象区間		18.2k 地点～21.6k 地点（約 3.4k 区間）		撤去計画検討時と同様
流況条件		流量規模 3 ケース（1,500 m³/s、3,000 m³/s、5,000m³/s）		
初期条件	初期河道	平成 26 年度工事後河道（平成 26 年度測量成果 ＋ 工事後断面）		ダム下流：H26.12 ダム上流：H27.1
	河床材料	1 次元モデルと同様（主流路の河床材料より設定）		
境界条件		下流端水位	不等流計算による H・Q 式	18.2k 地点
		流入量	流況条件より設定した洪水ハイドロ	21.6k 地点
		流入土砂量	掃流力見合いの粒径別平衡流砂量	〃
荒瀬ダムの条件		越流部	メッシュ河床高を敷高まで上げてモデル化	
		水位低下設備	簡易的にモデル化	
		条件	完全越流の場合は、越流公式を用いる	
撤去ケース		第 3 段階撤去（H26 年度）		
検討ケース		ケース①	ピーク流量 1,500m³/s	
		ケース②	ピーク流量 3,000m³/s	平均年最大規模
		ケース③	ピーク流量 5,000m³/s	

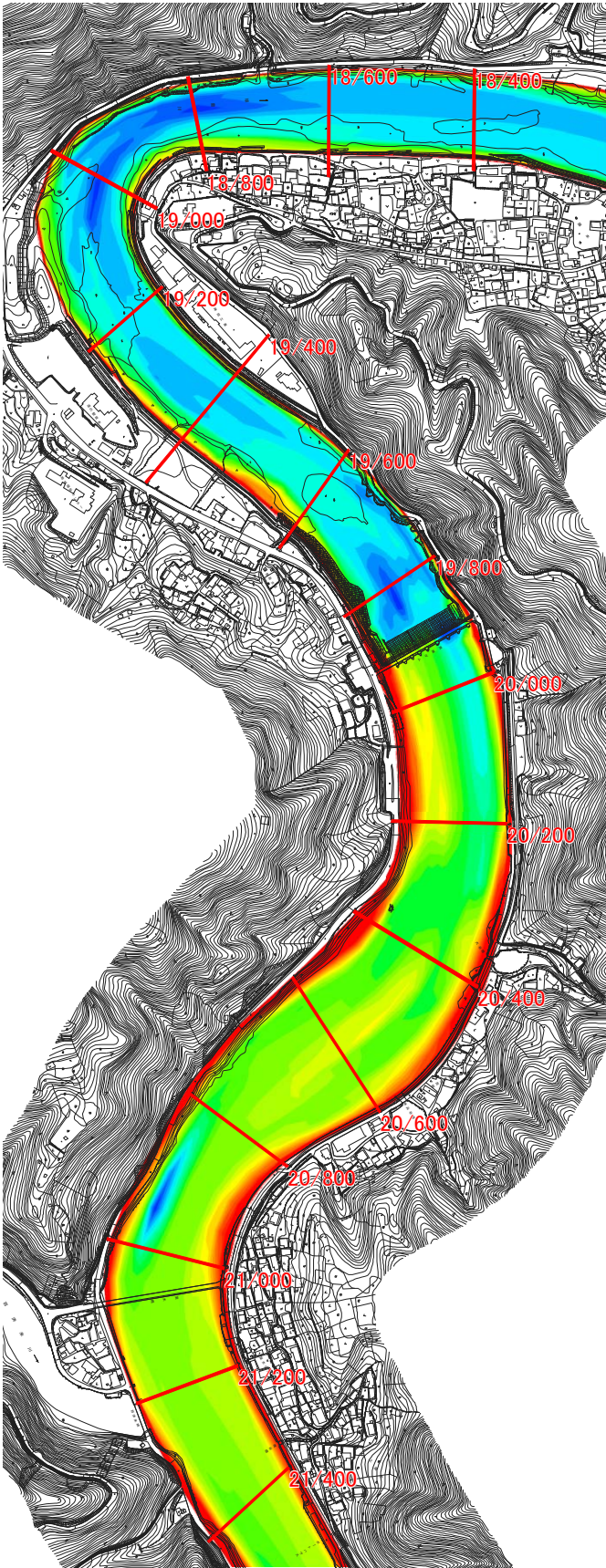
18.2.2 予測シミュレーション結果

流量規模別洪水後の河床高、河床変動高の平面分布を図 18.2.5 に、洪水ピーク時の流向・流速の平面分布を図 18.2.6 に示す。図より以下のことがいえる。

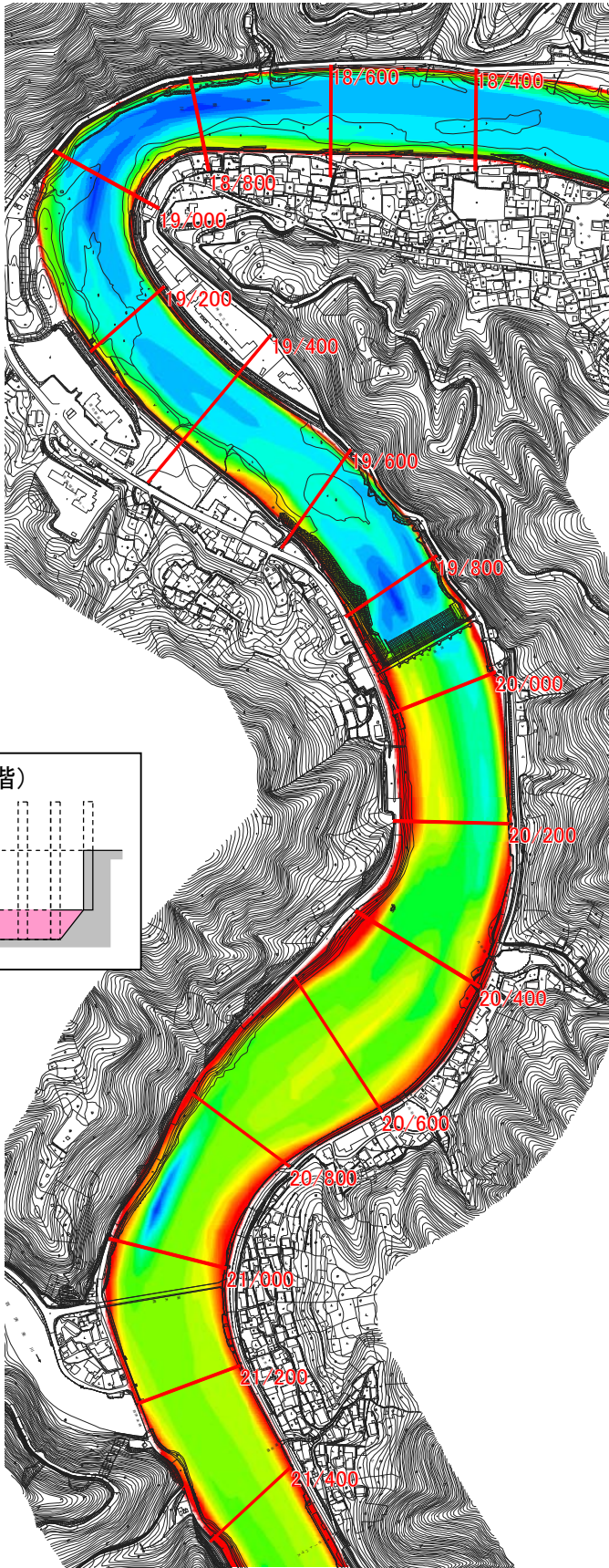
- いずれのケースにおいても、ダム直上流部では、撤去した右岸みお筋部、水位低下設備のある河道中央部で洗掘傾向がみられる。また、撤去した右岸みお筋部の直下流部でも、局所的な洗掘がみられる。
- ケース②（Q=3,000m³/s）、ケース③（Q=5,000m³/s）では、ダム下流の河道中央部から左岸側にかけて、土砂の堆積が進行し、砂州の形成がみられる。
- 洪水ピーク時の流況においては、ケース①（Q=1,500m³/s）、ケース②（Q=3,000m³/s）では、撤去した右岸みお筋部に流れが集中し、流速が大きい領域が形成されることで横断方向に大きな流速差が生じている。また、ケース③（Q=5,000m³/s）では、ダム地点で大きな流速が生じるが、比較的スムーズな流れとなっている。

ケース① : 1,500m³/s

河床高(第3段階撤去後)



河床高(洪水後)



河床変動高

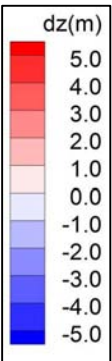
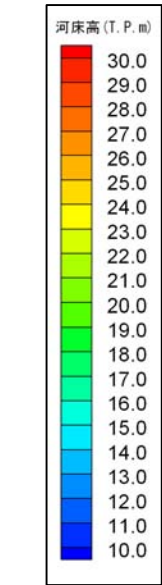
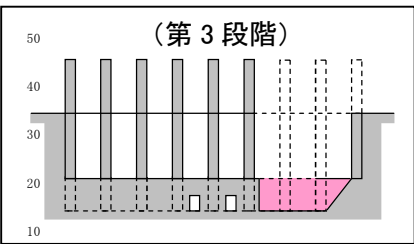
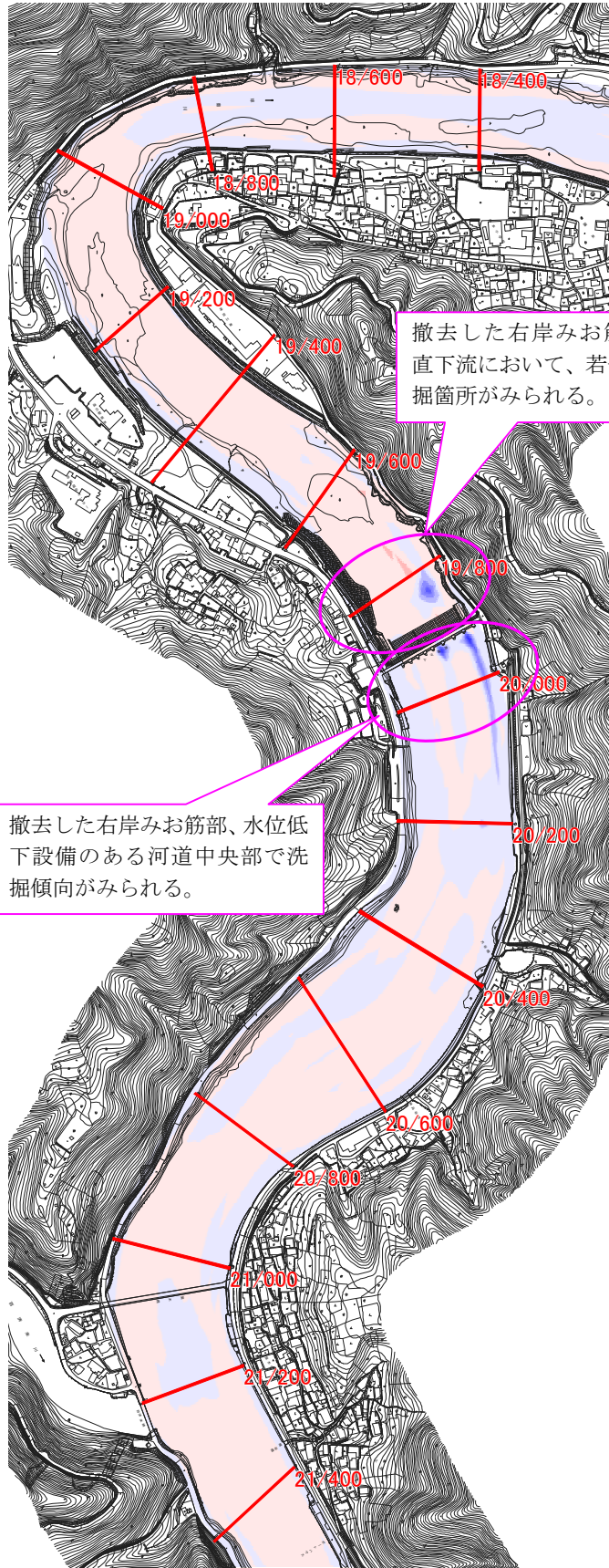
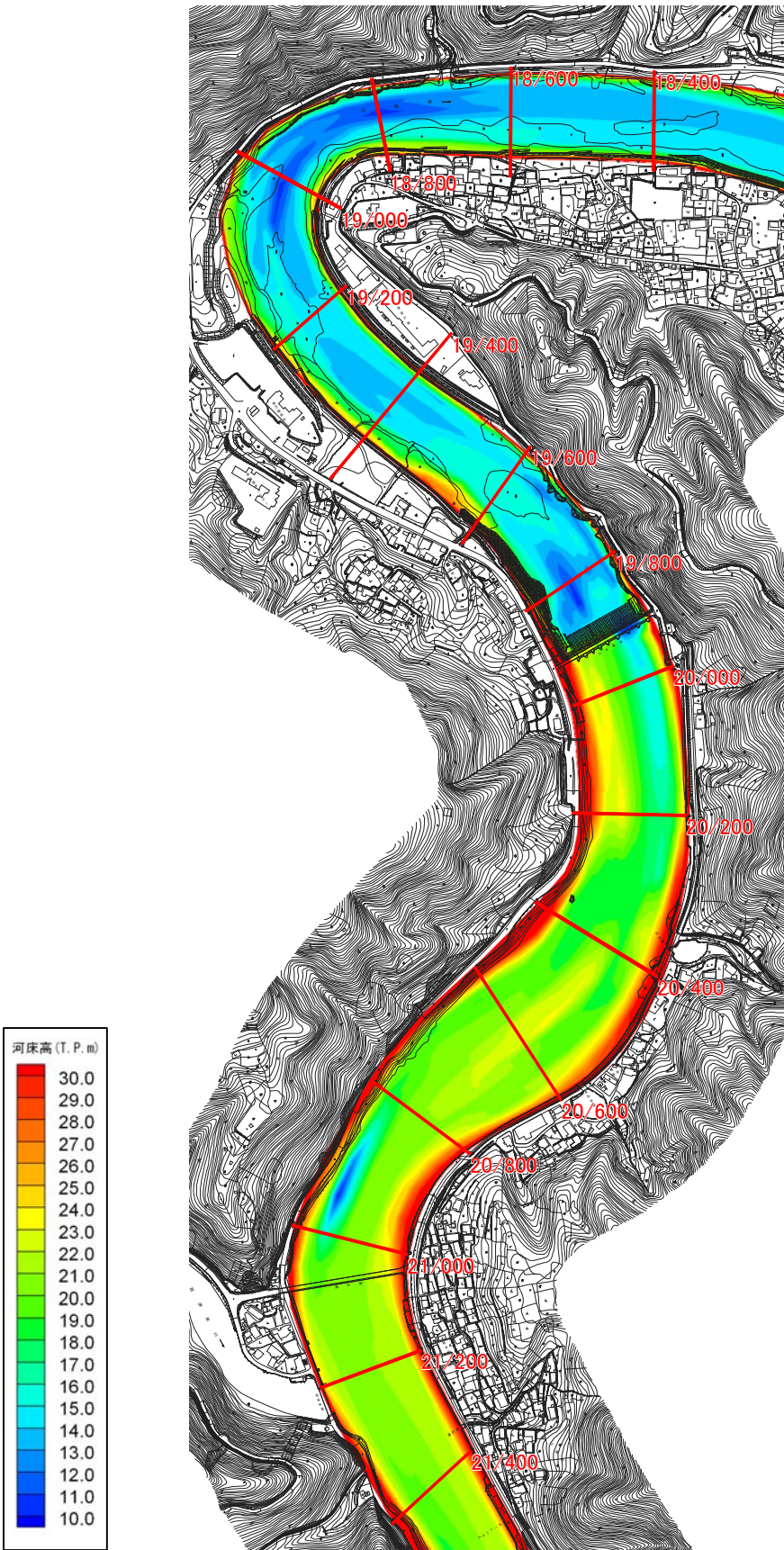


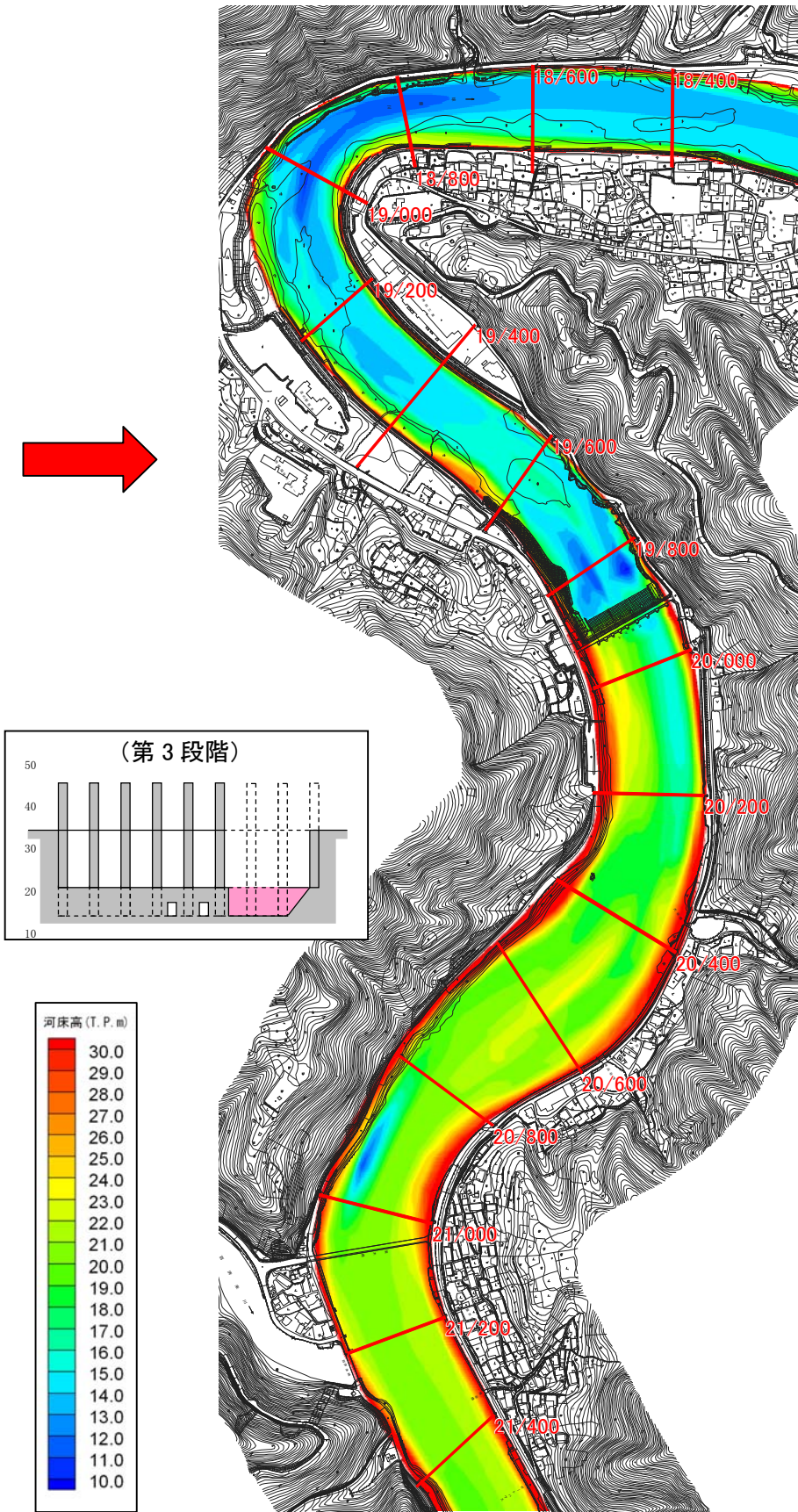
図 18.2.5(1) 河床高・河床変動高の平面分布 (ケース① : 1500m³/s)

ケース② : 3,000m³/s

河床高(第3段階撤去後)



河床高(洪水後)



河床変動高

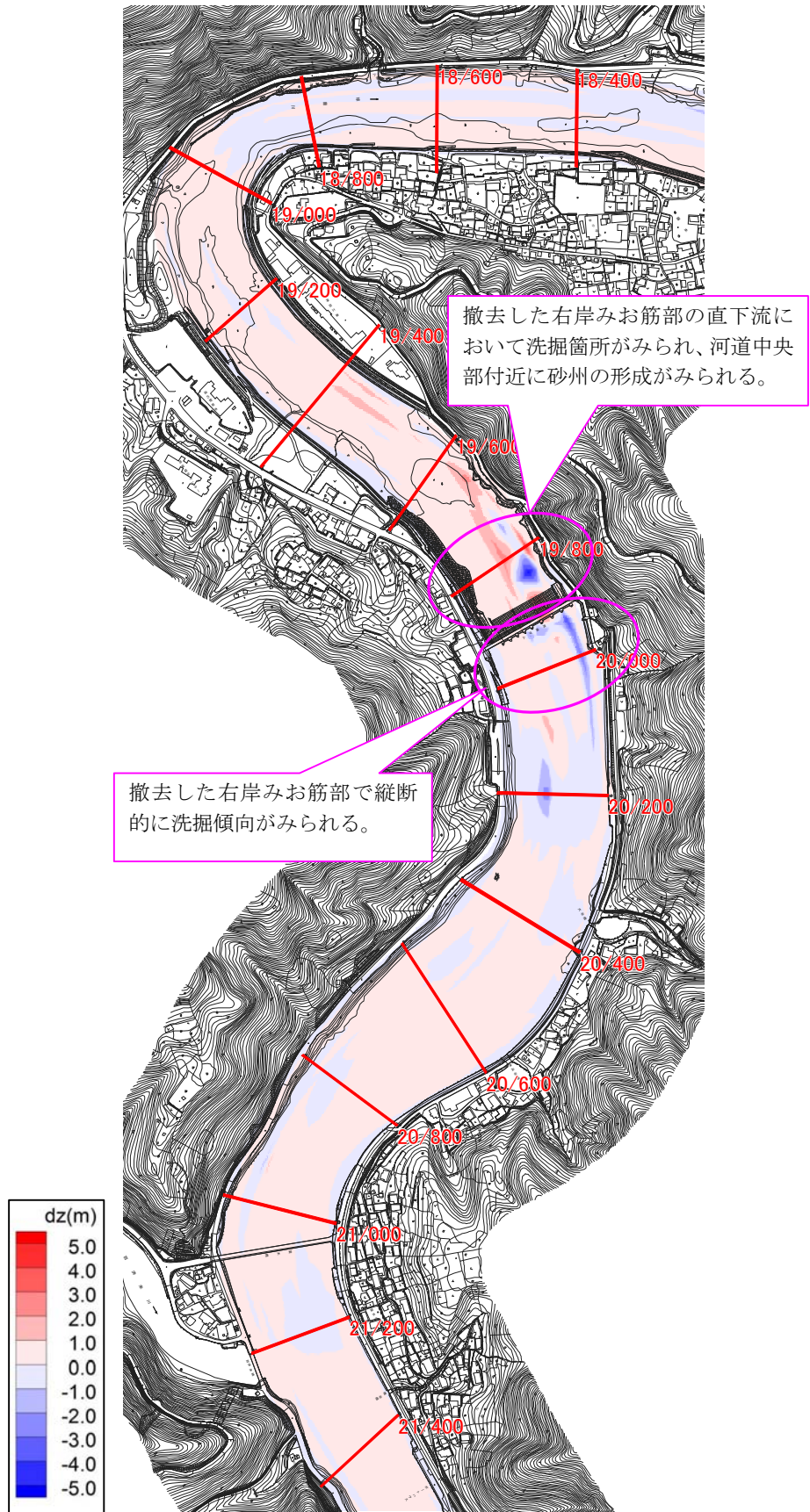


図 18.2.5(2) 河床高・河床変動高の平面分布 (ケース② : 3000m³/s)

ケース③ : 5,000m³/s

河床高(第3段階撤去後)

河床高(洪水後)

河床変動高

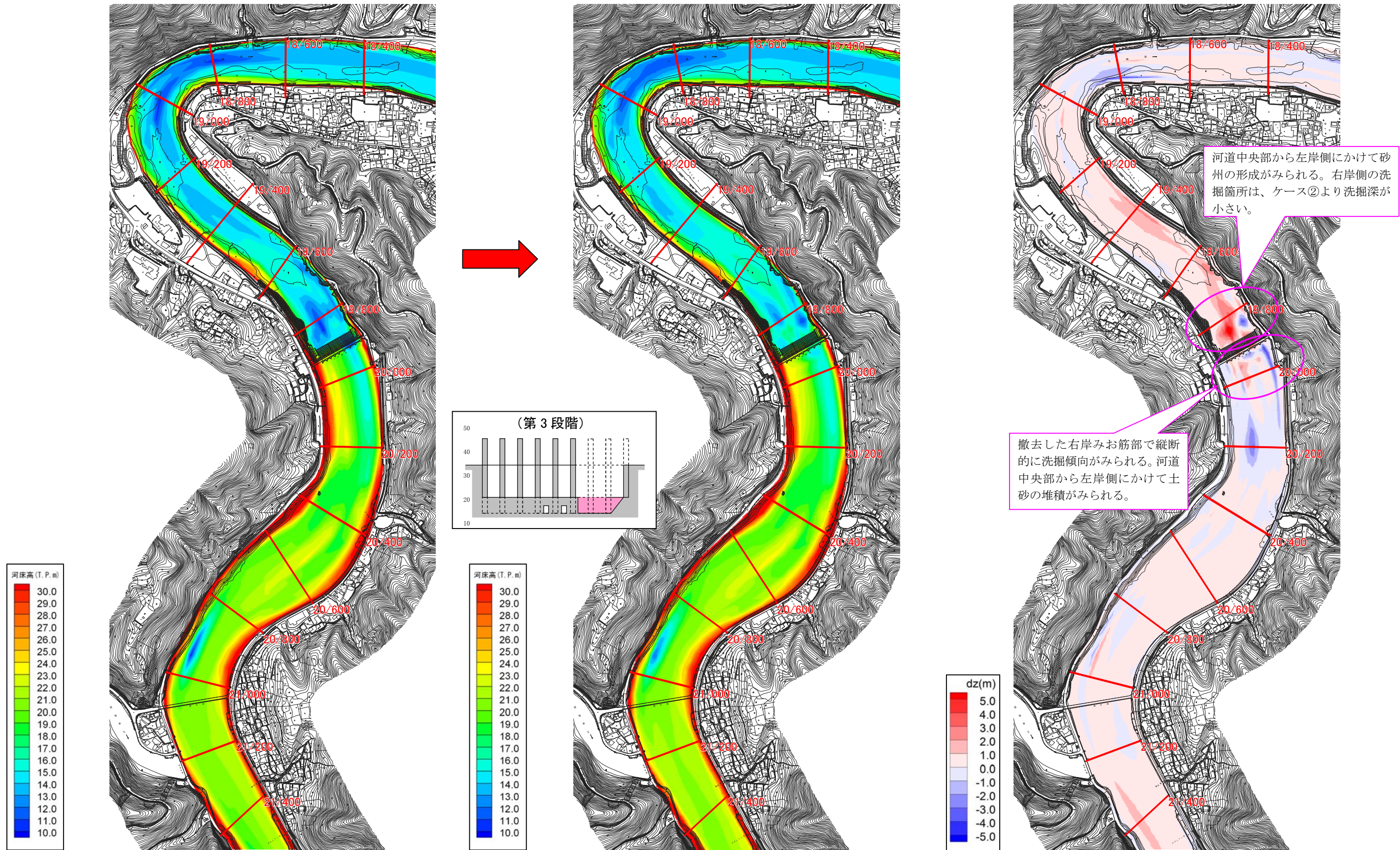


図 18.2.5(3) 河床高・河床変動高の平面分布 (ケース③ : 5000m³/s)

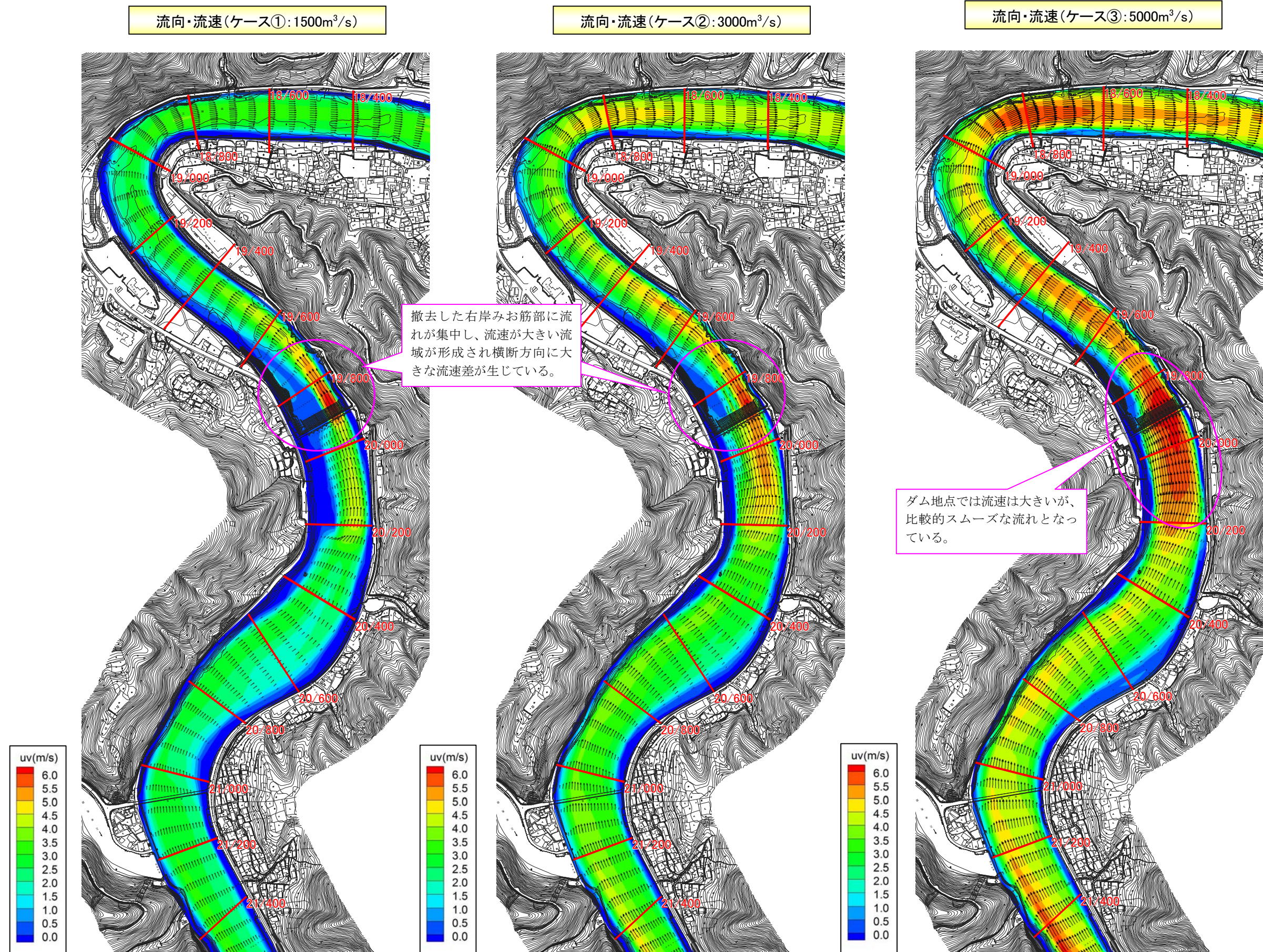
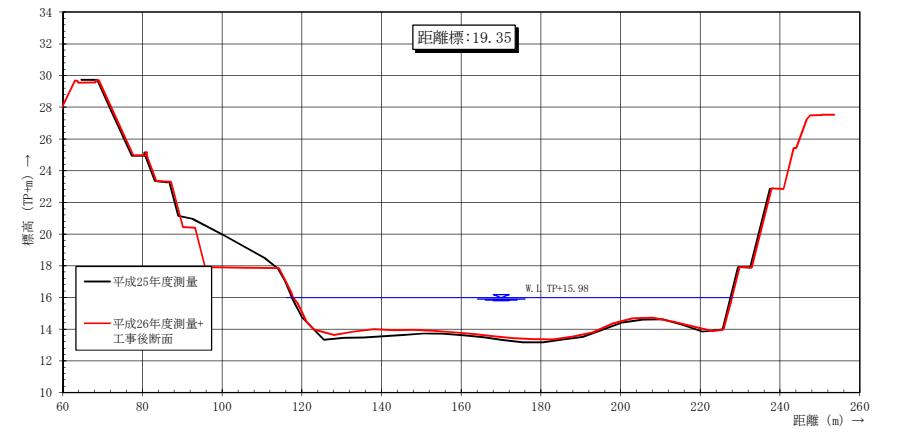
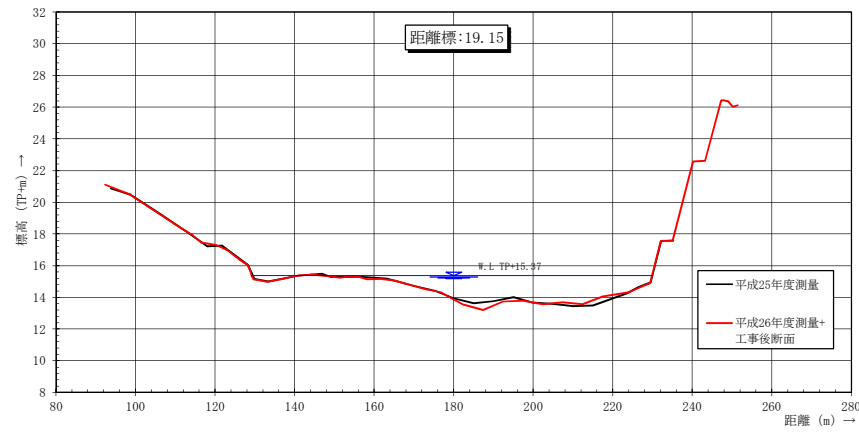
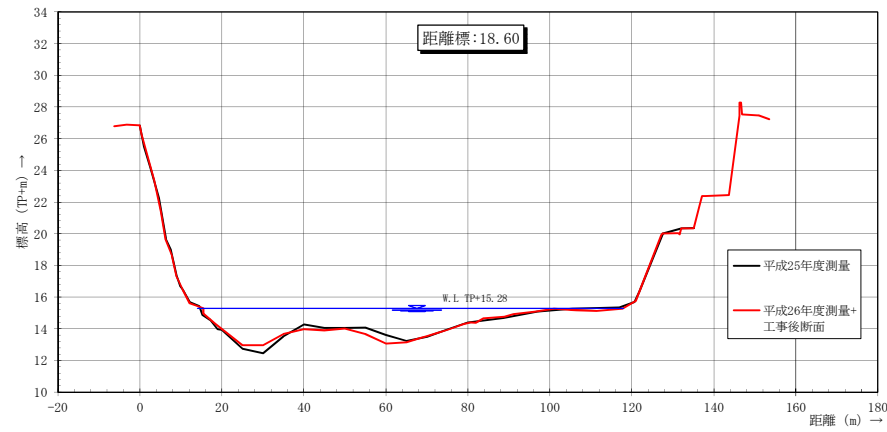
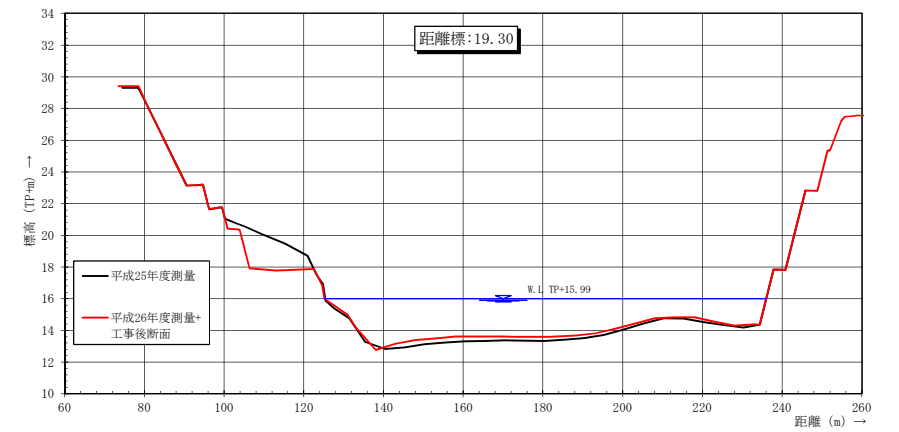
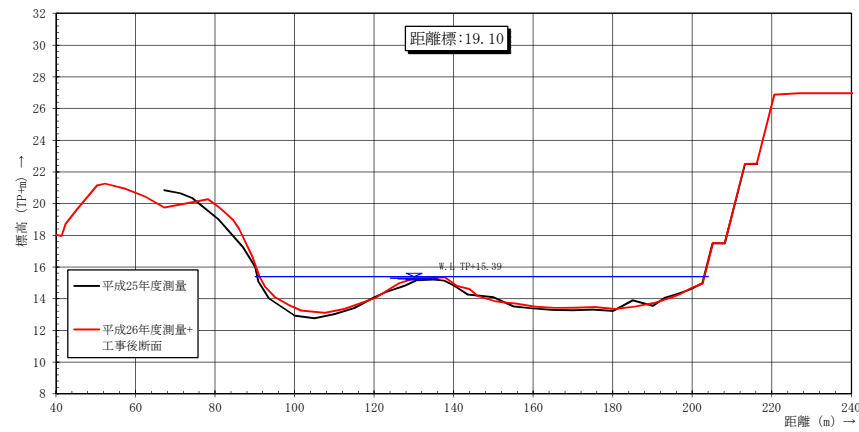
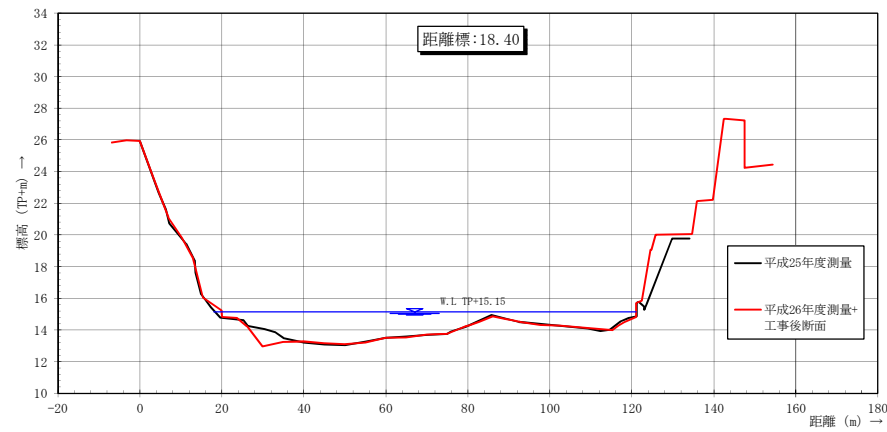
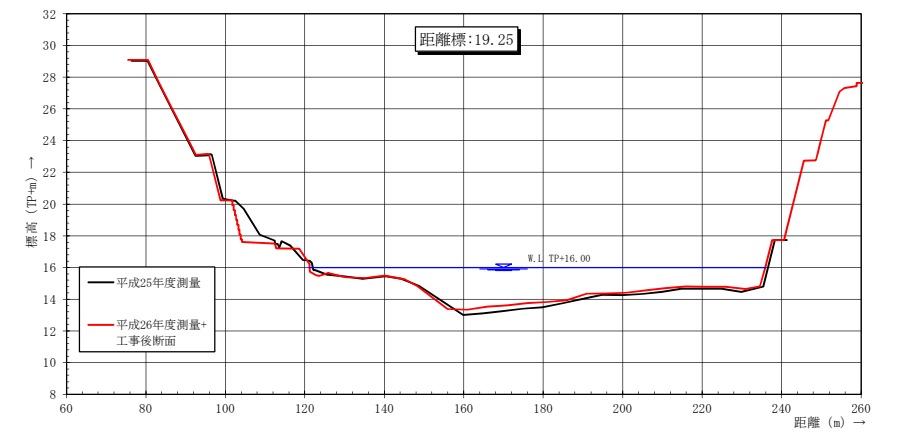
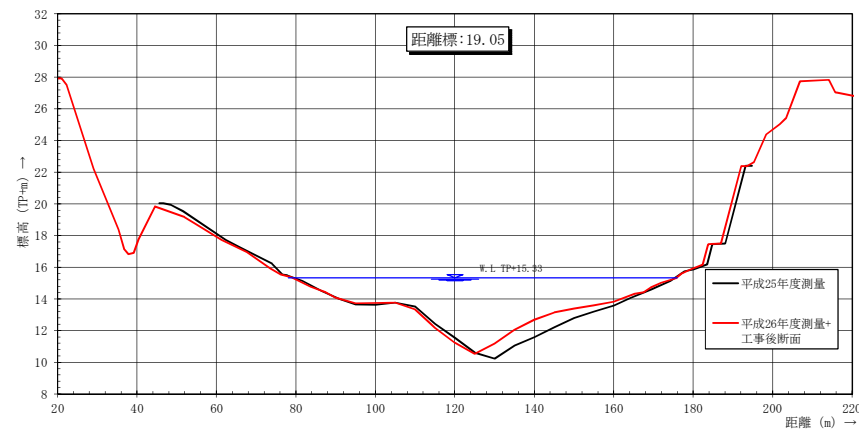
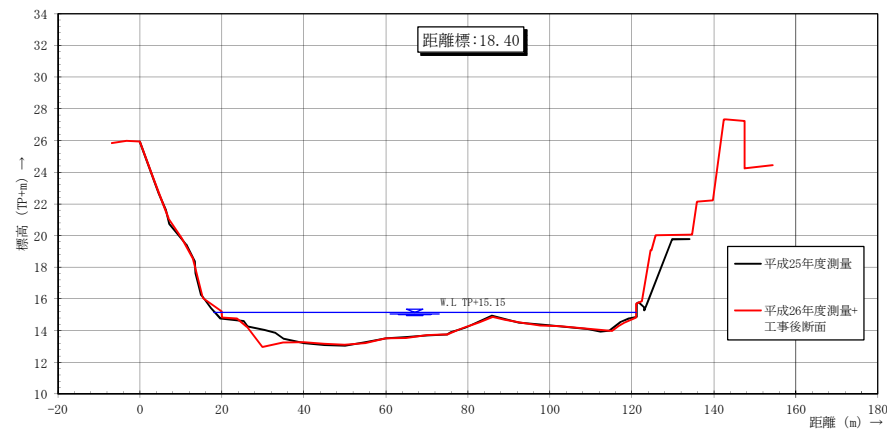
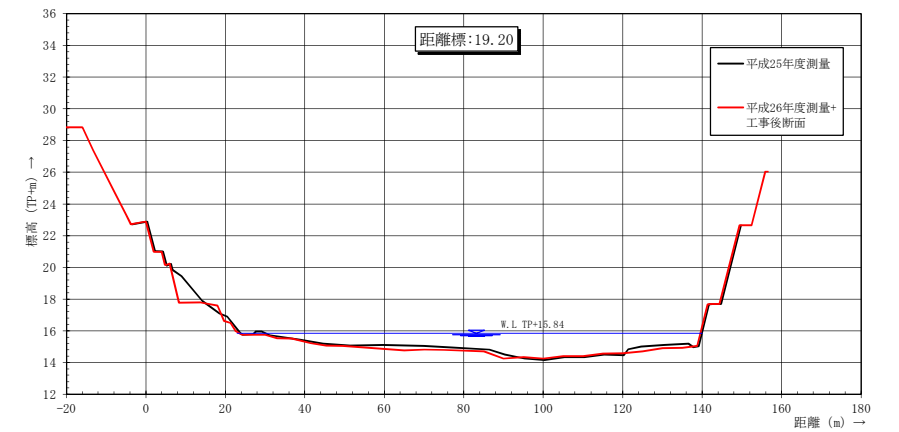
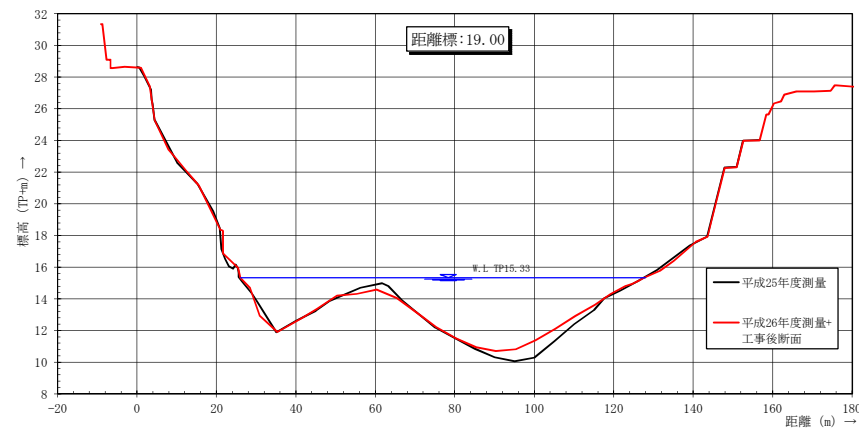
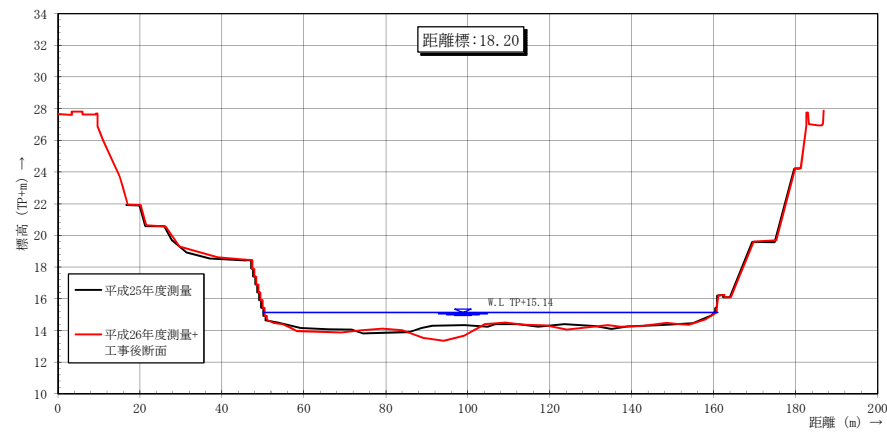
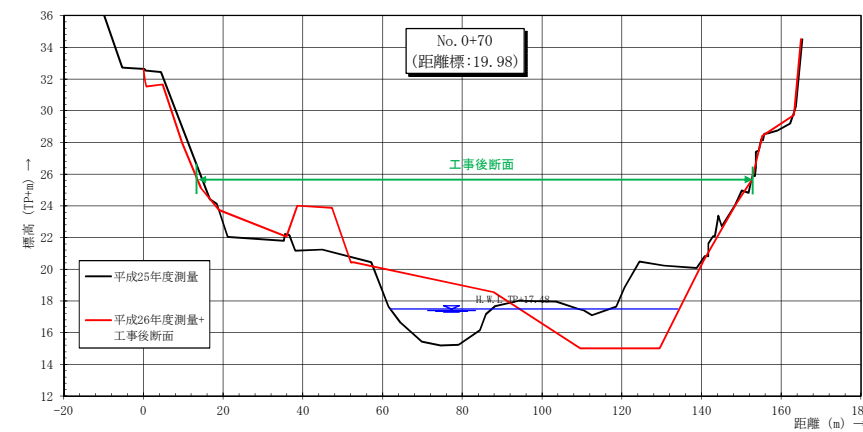
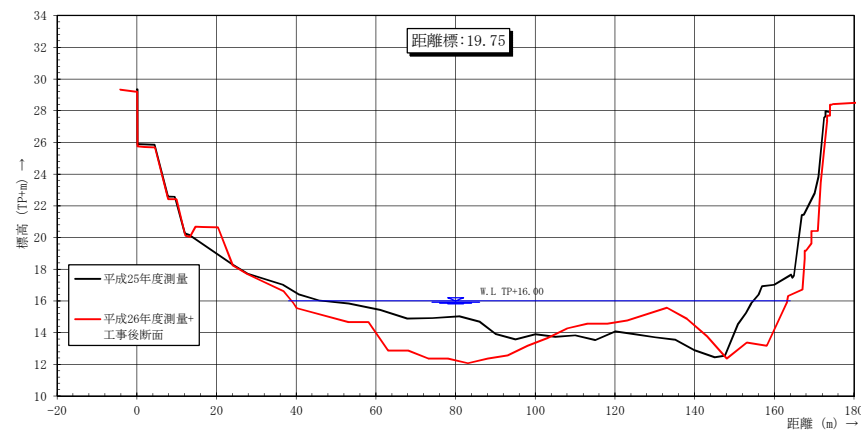
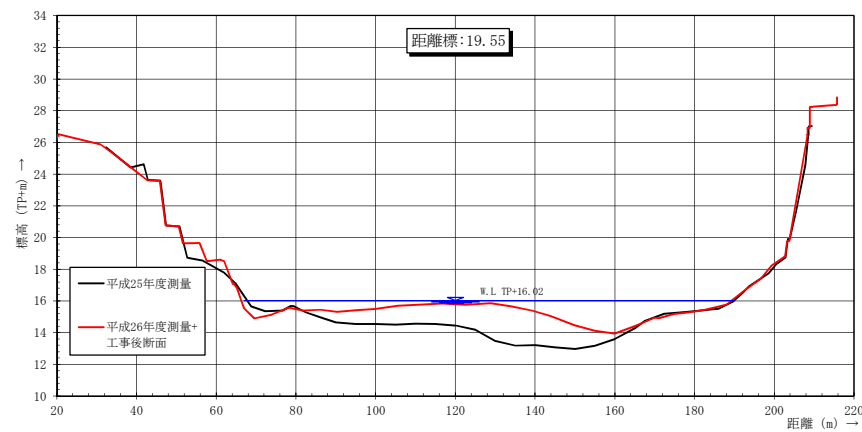
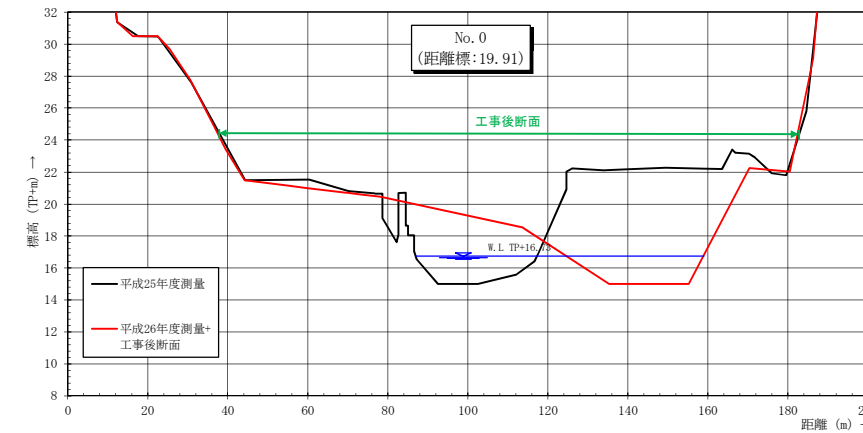
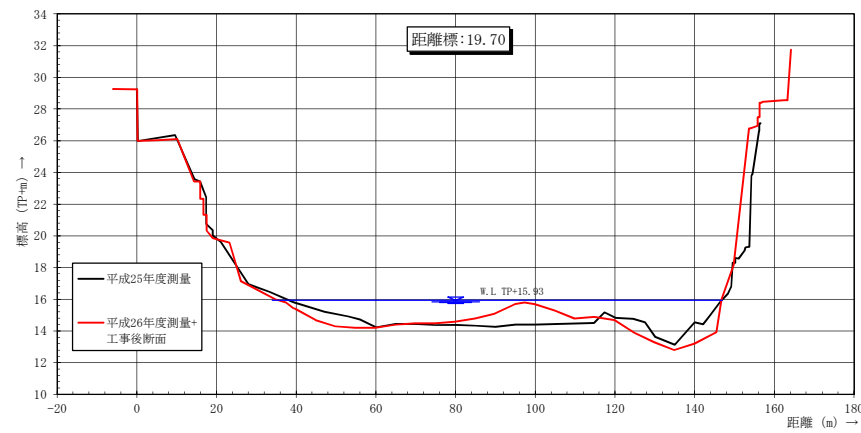
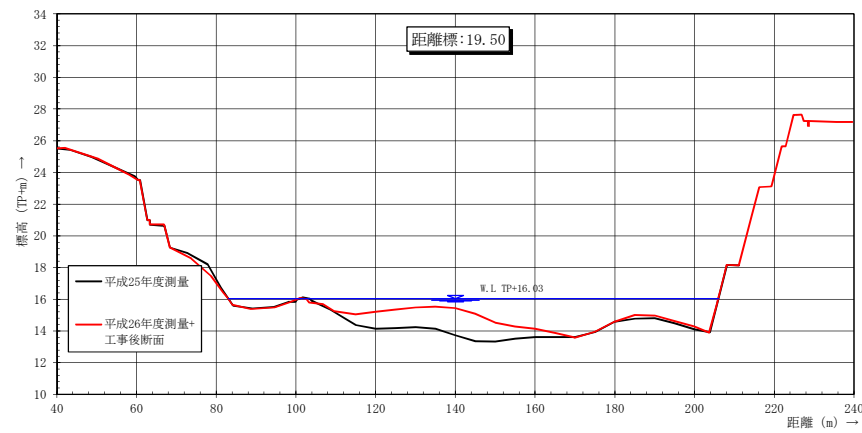
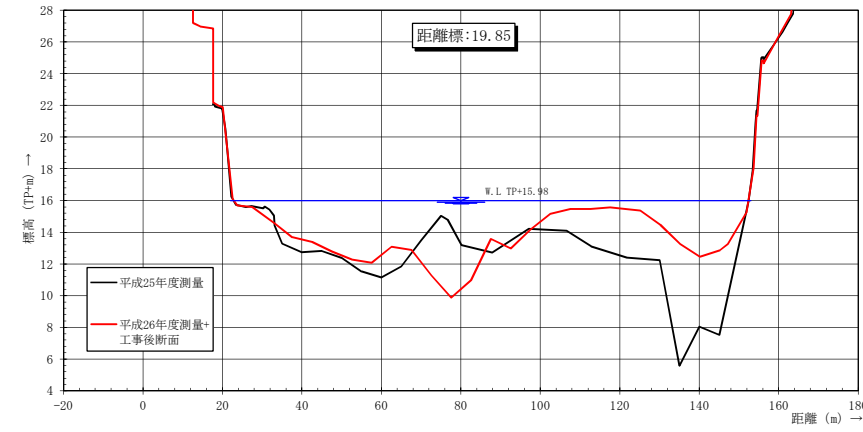
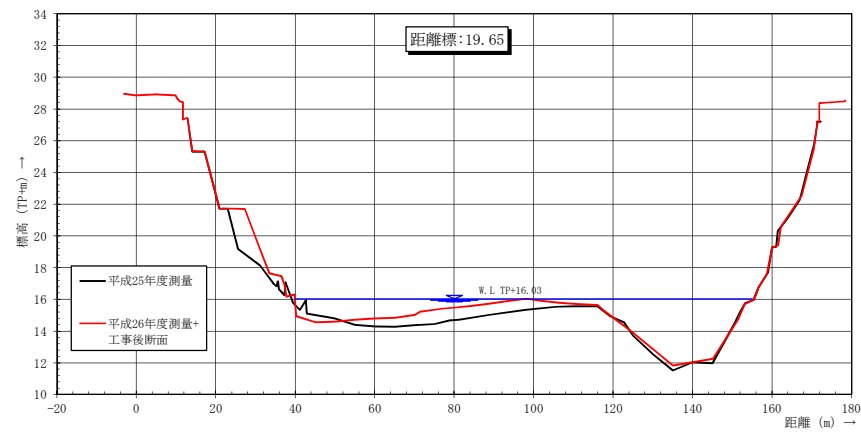
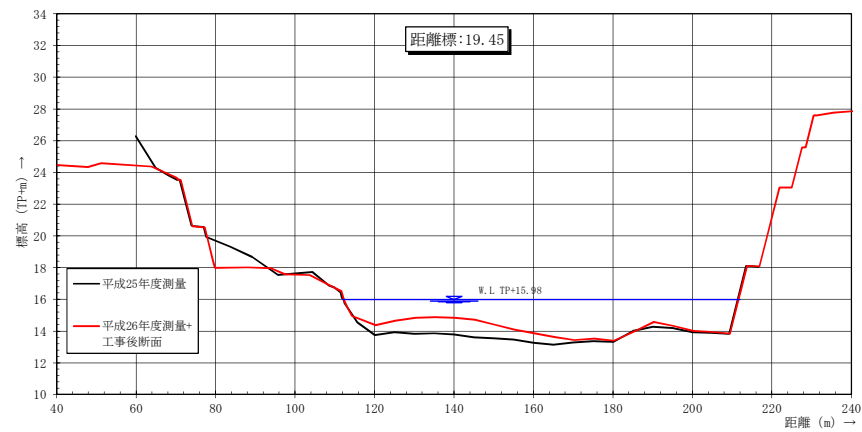
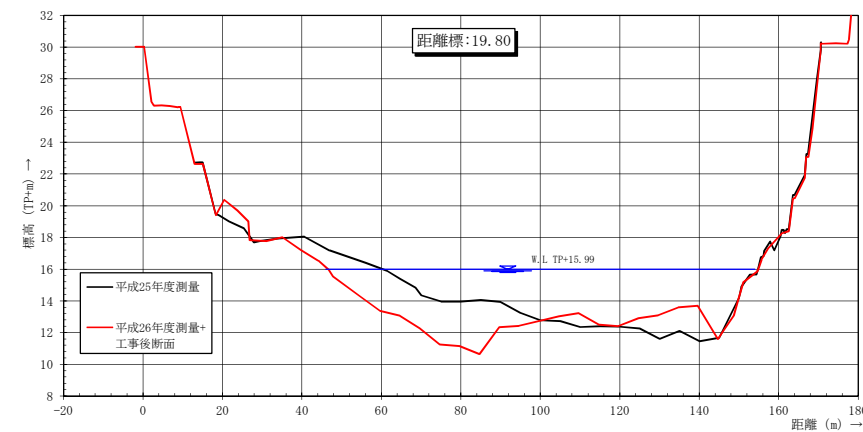
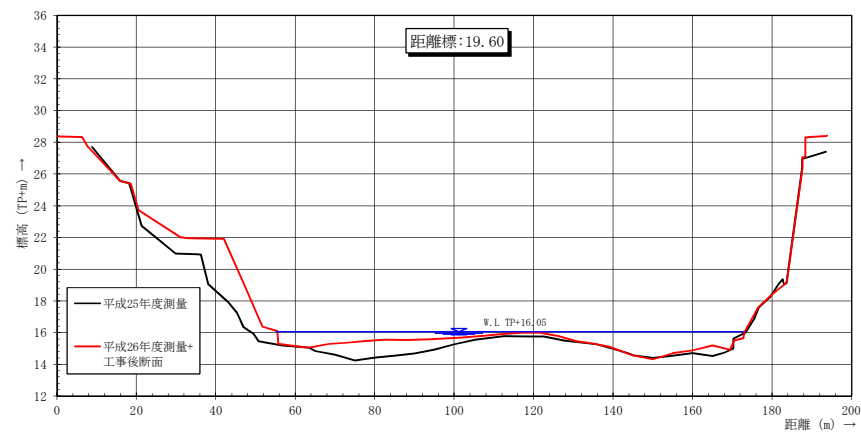
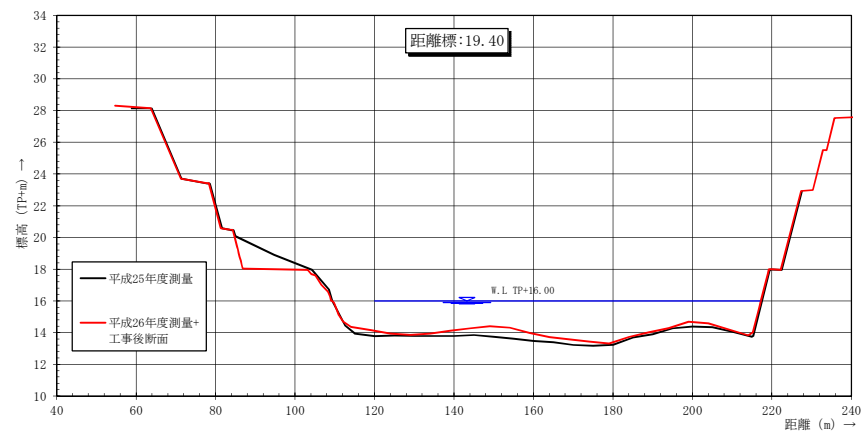
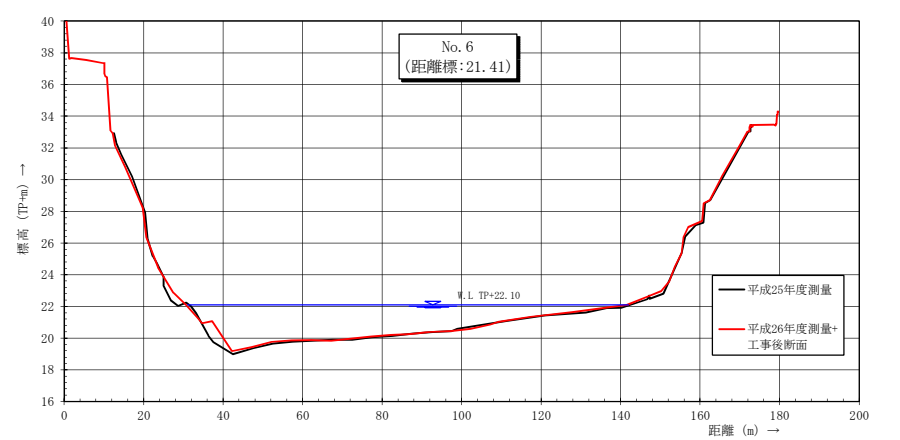
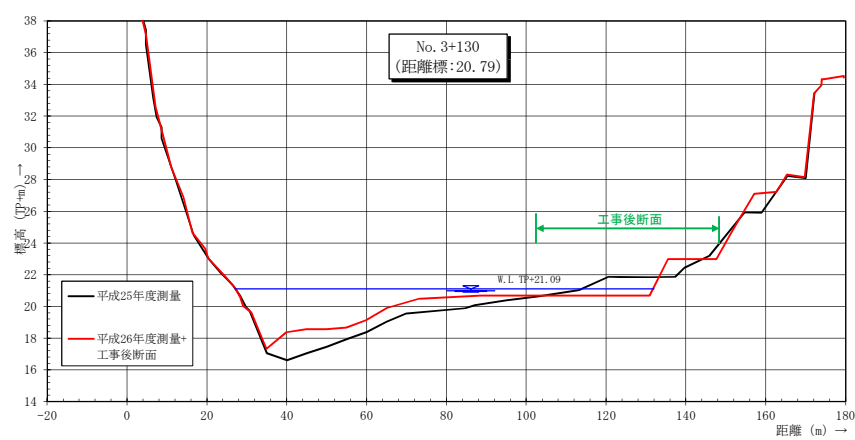
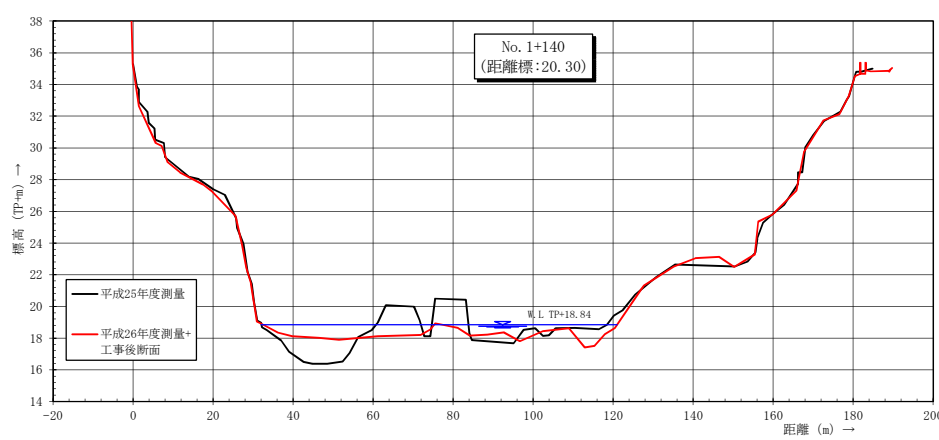
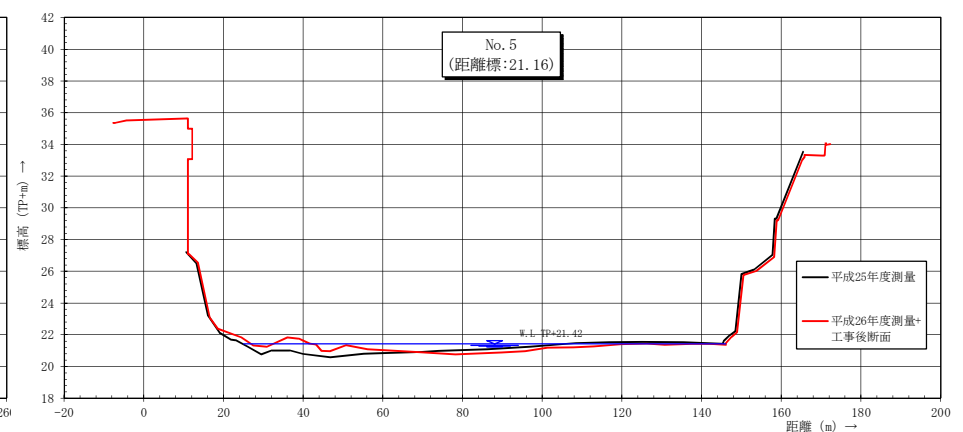
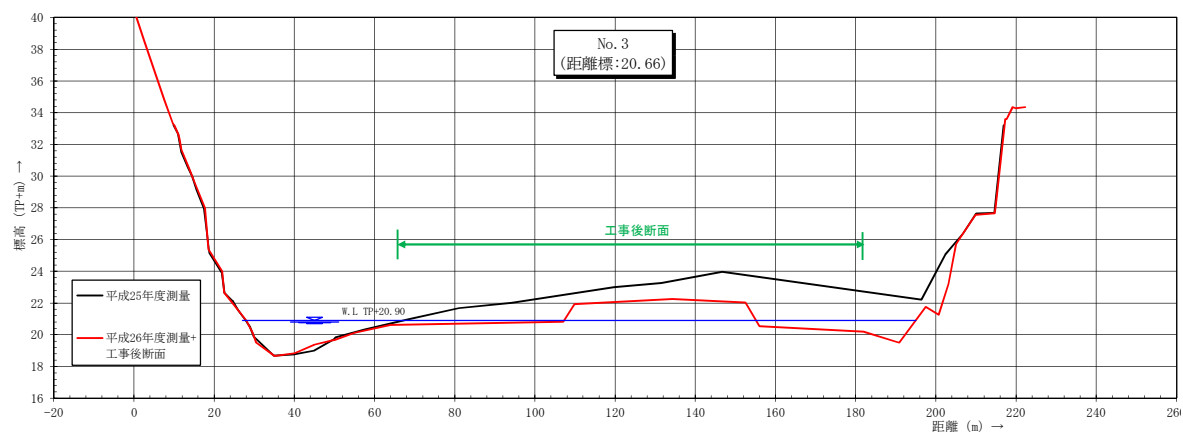
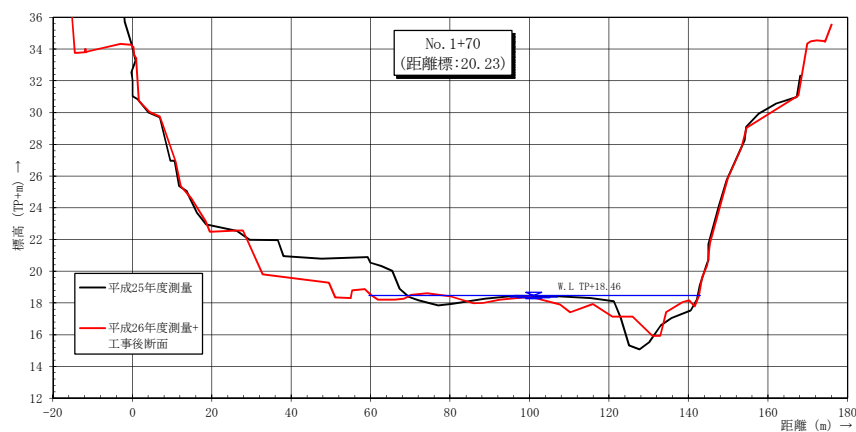
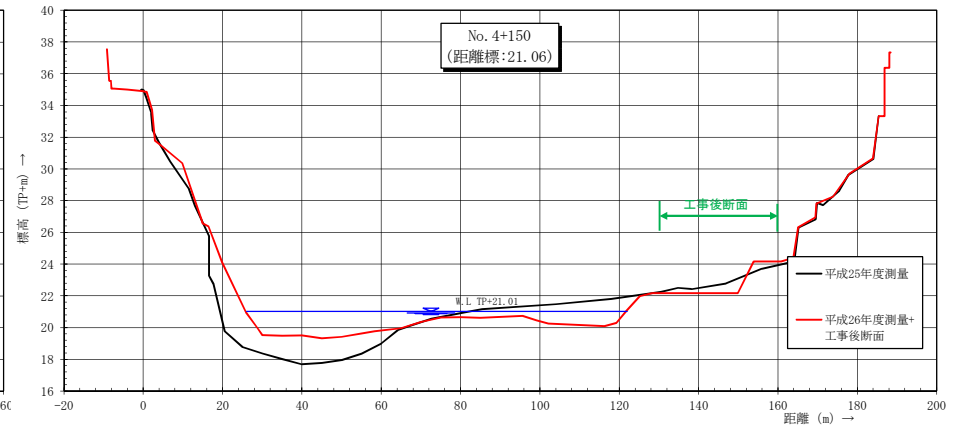
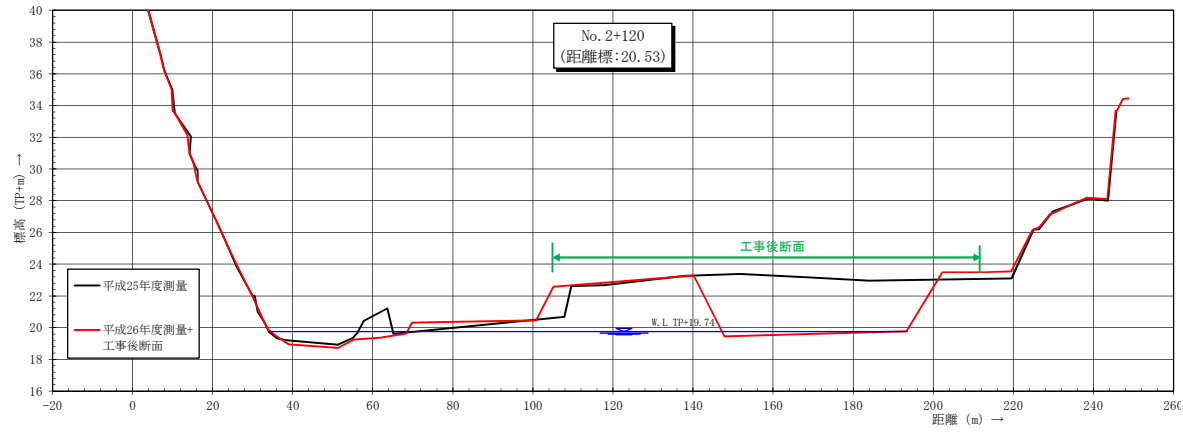
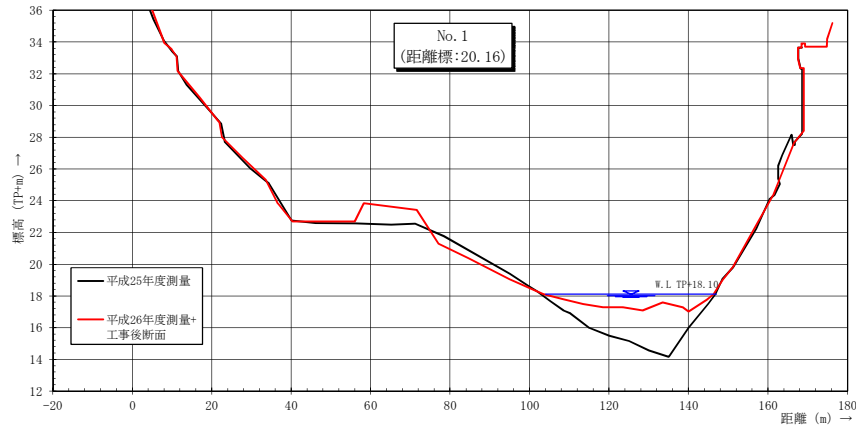
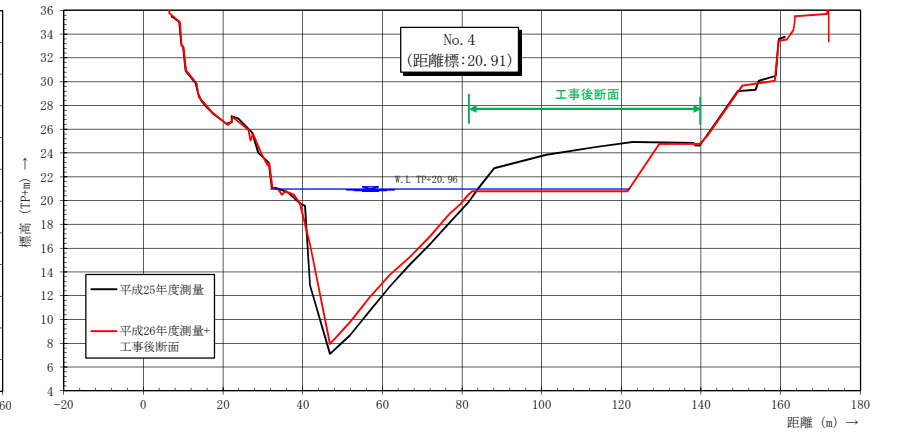
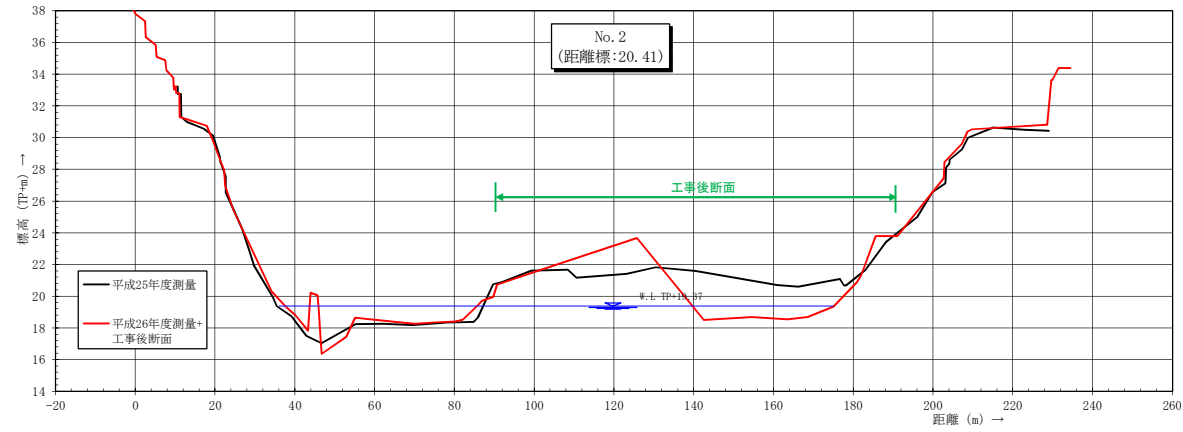
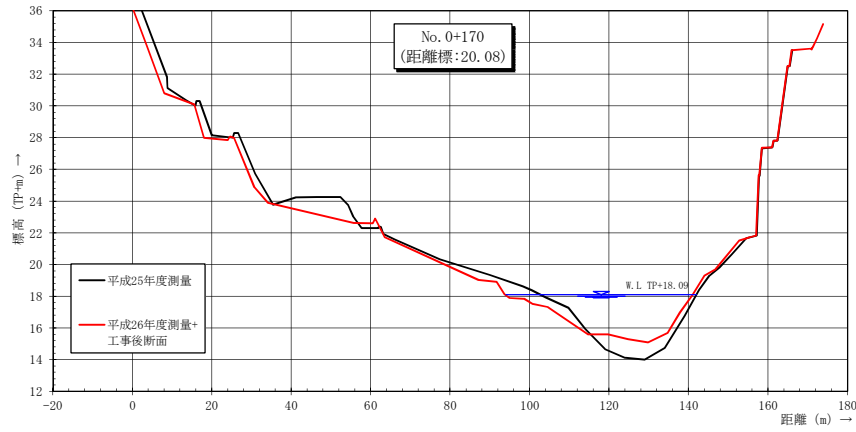


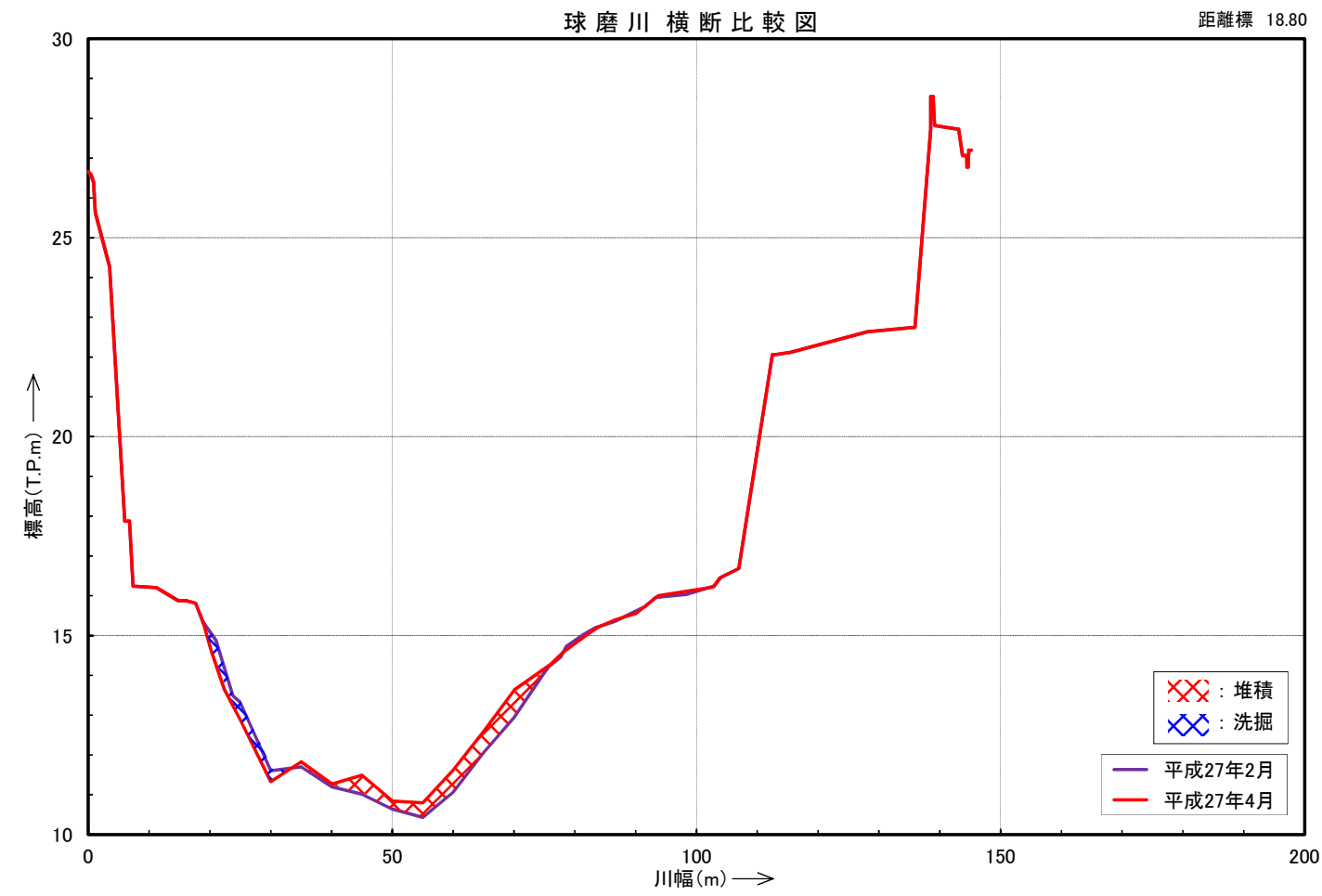
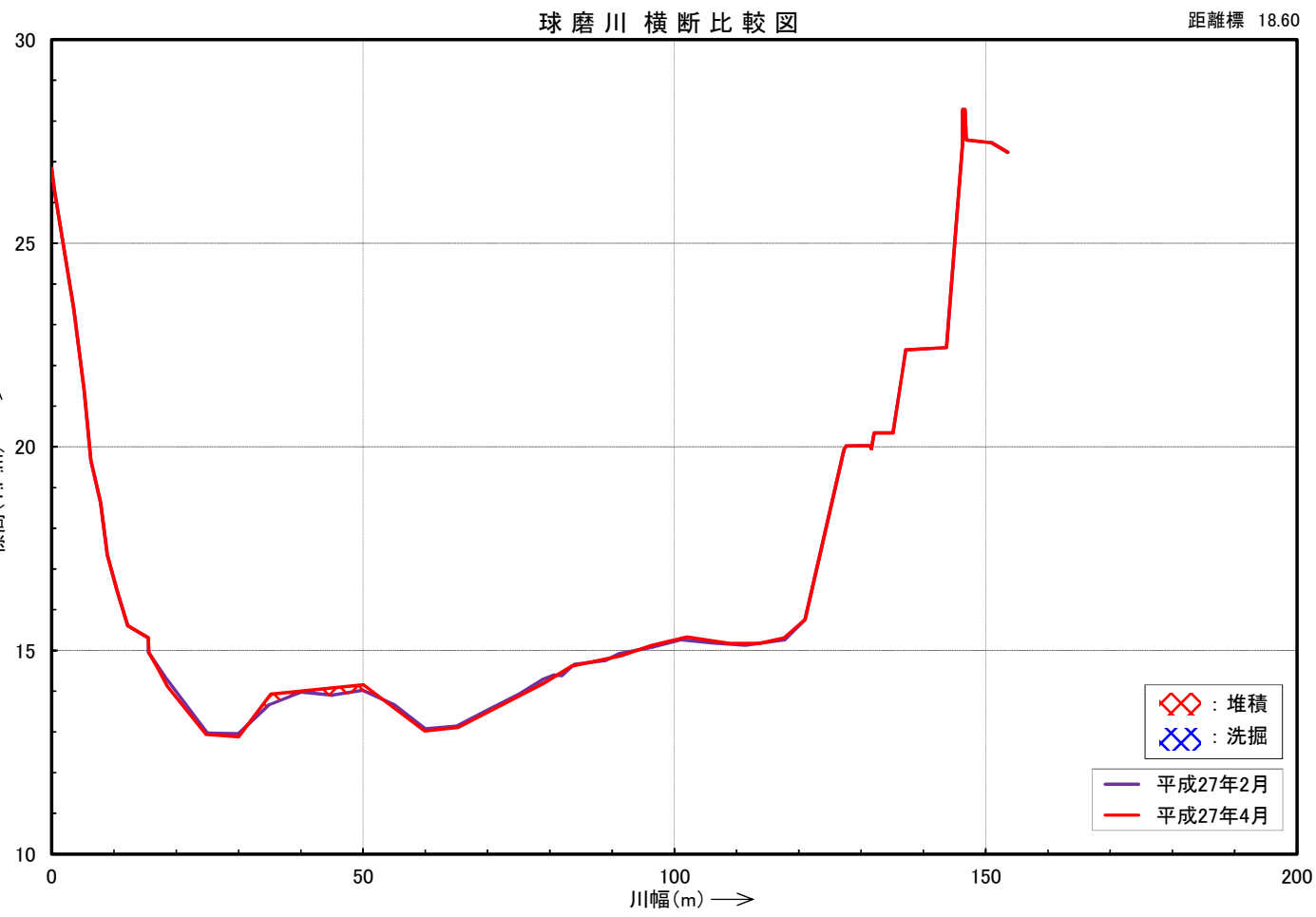
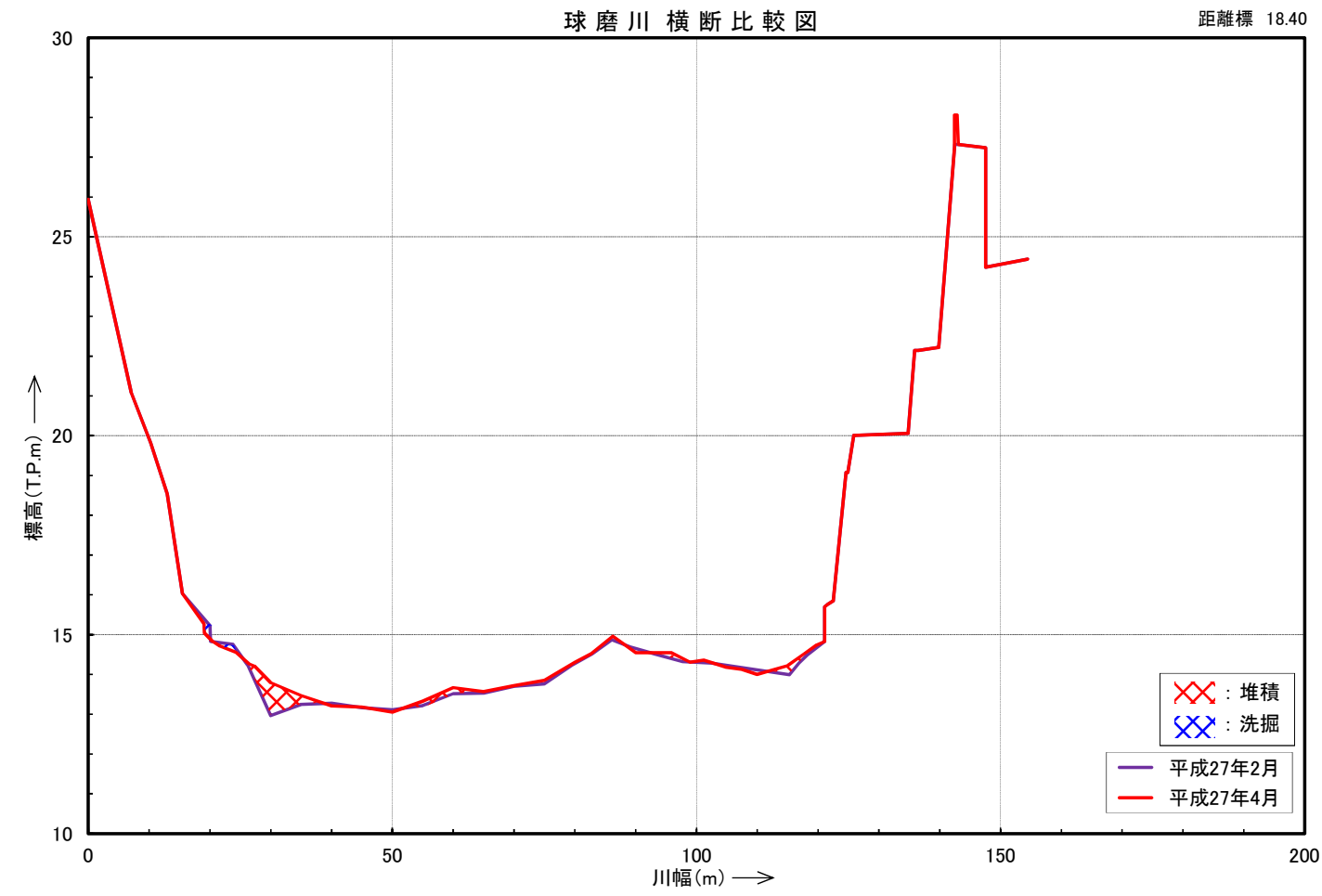
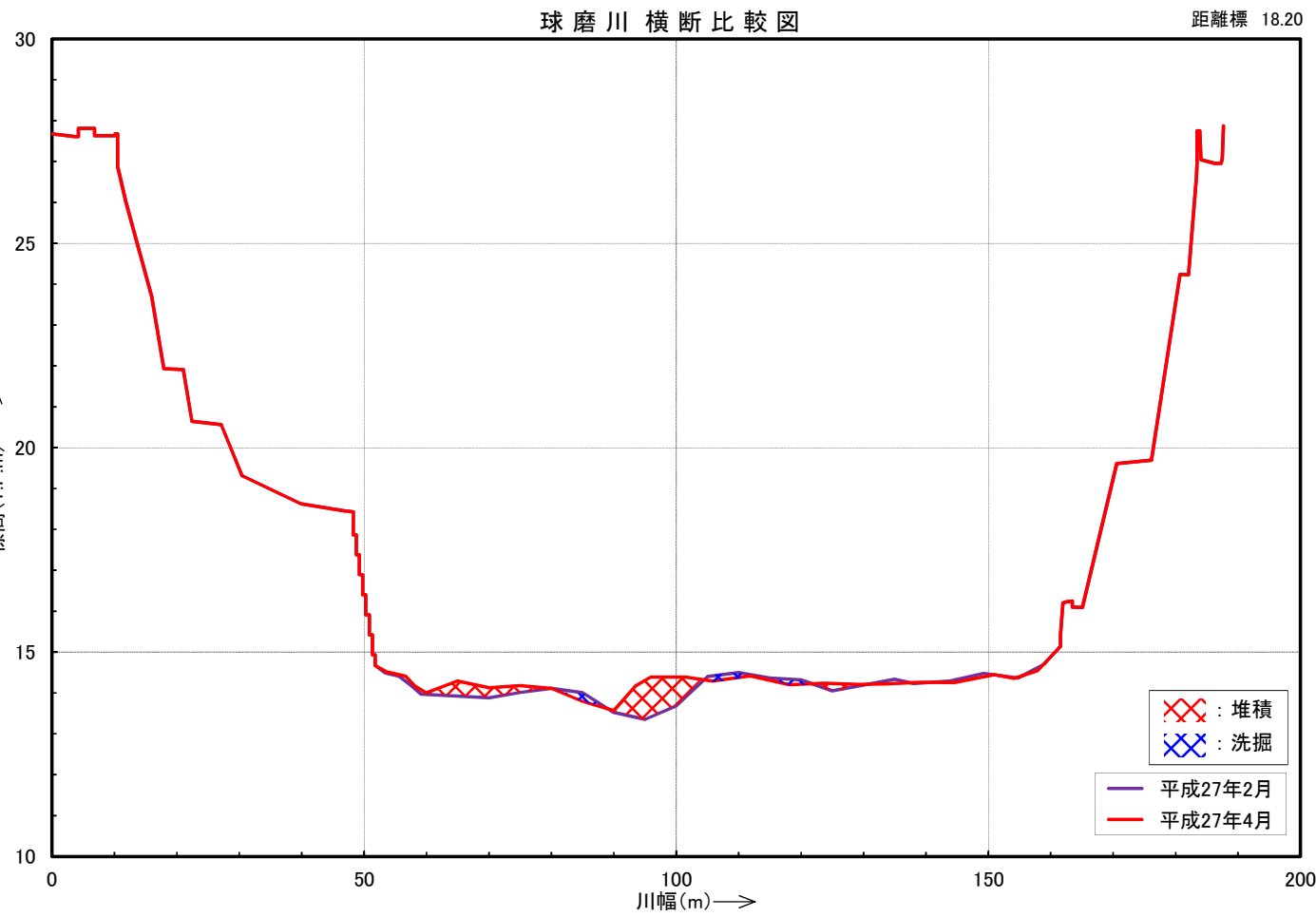
図 18.2.6 流向・流速の平面分布（洪水ピーク時）





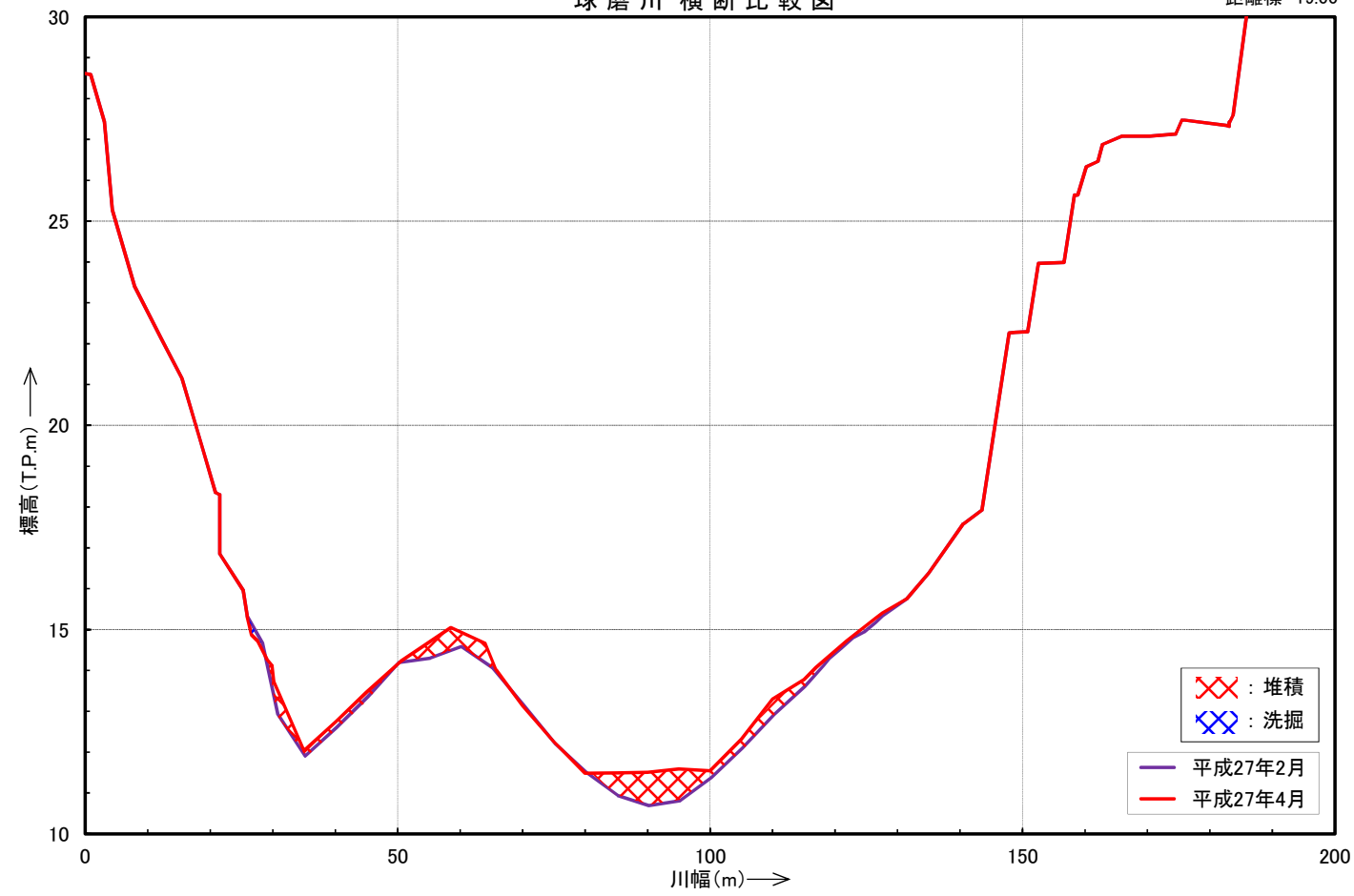


(19) 横断形状の比較（平成26年度末と平成27年4月の比較）



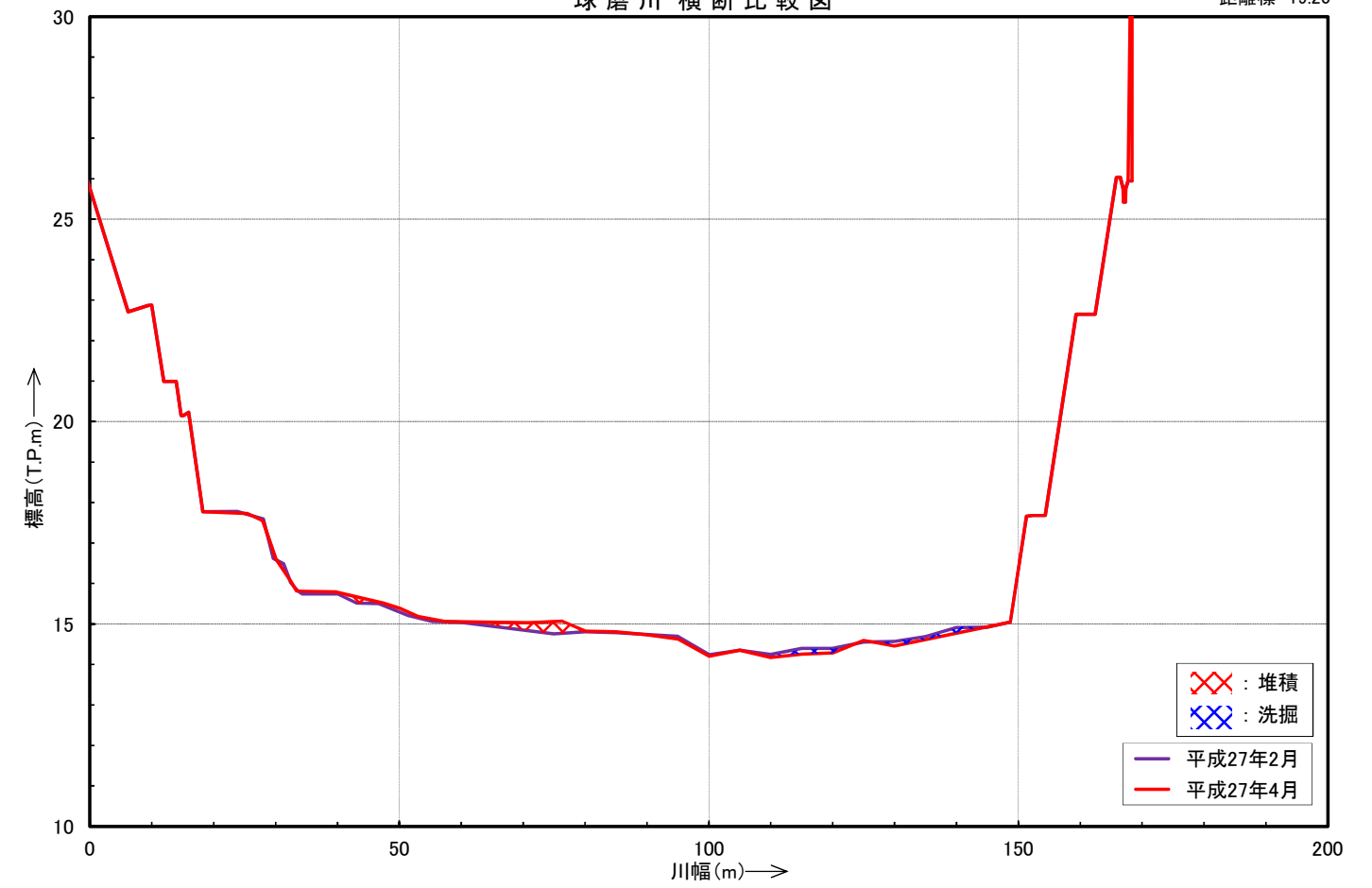
球磨川 横断比較図

距離標 19.00



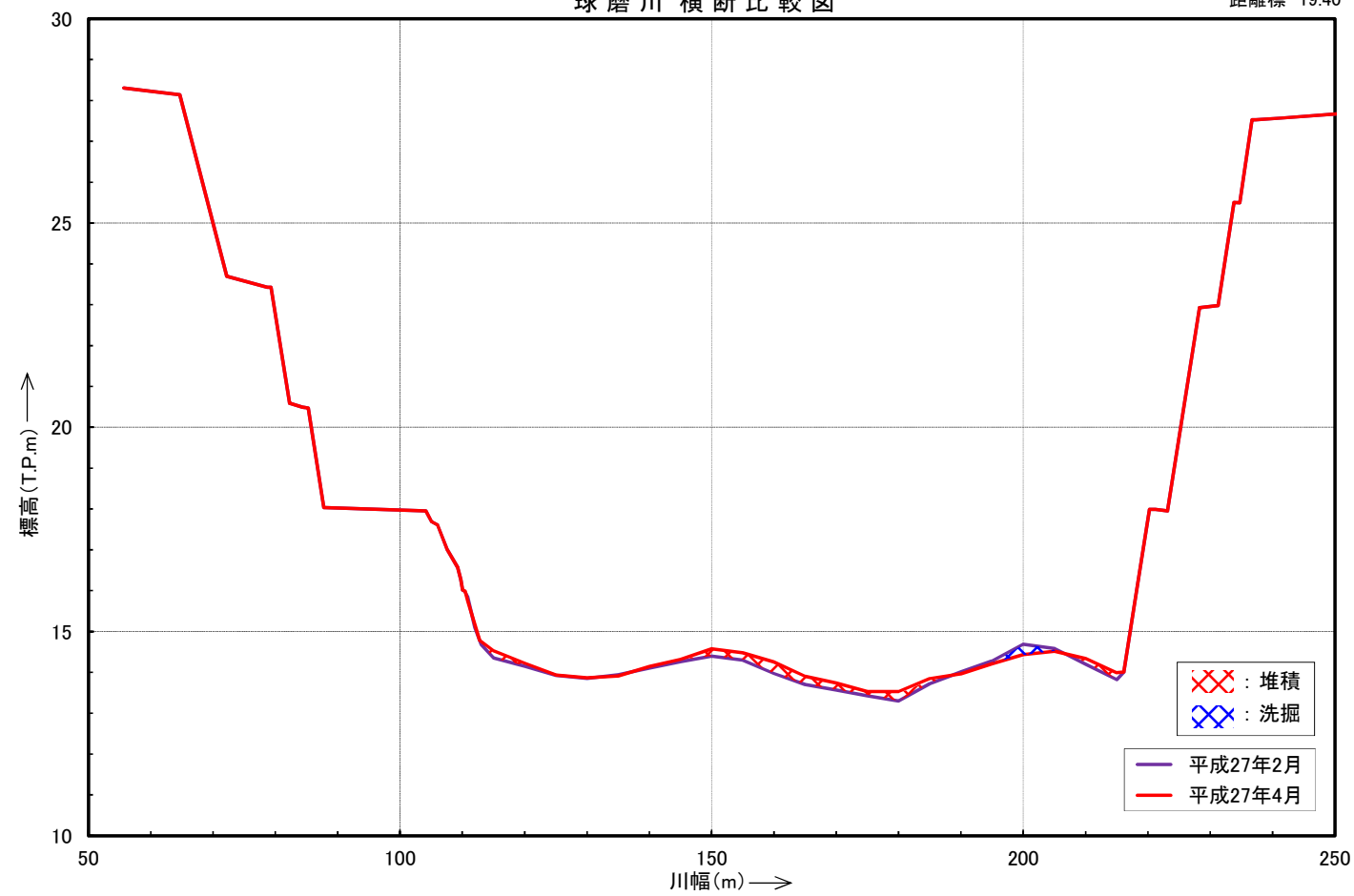
球磨川 横断比較図

距離標 19.20



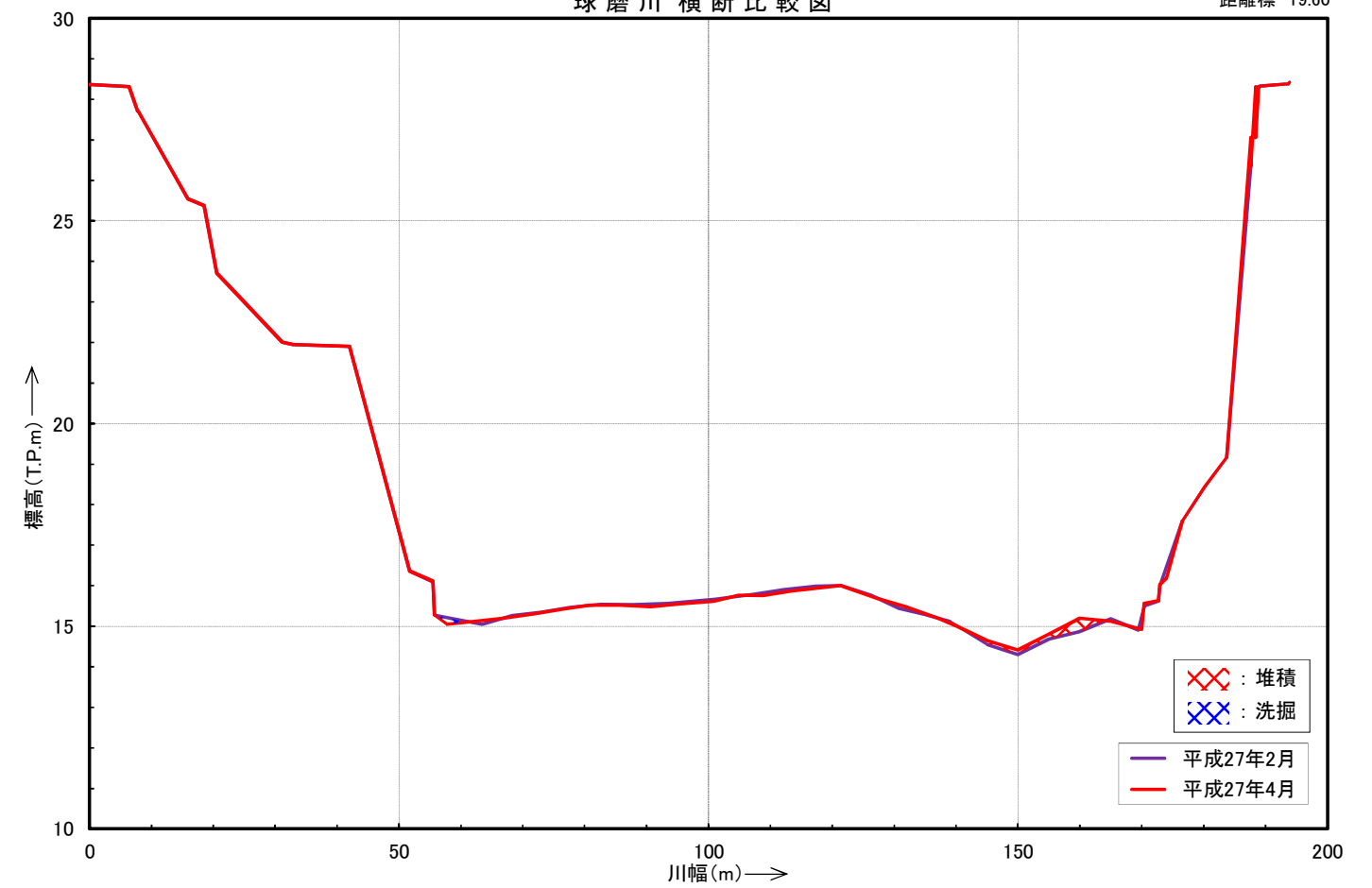
球磨川 横断比較図

距離標 19.40



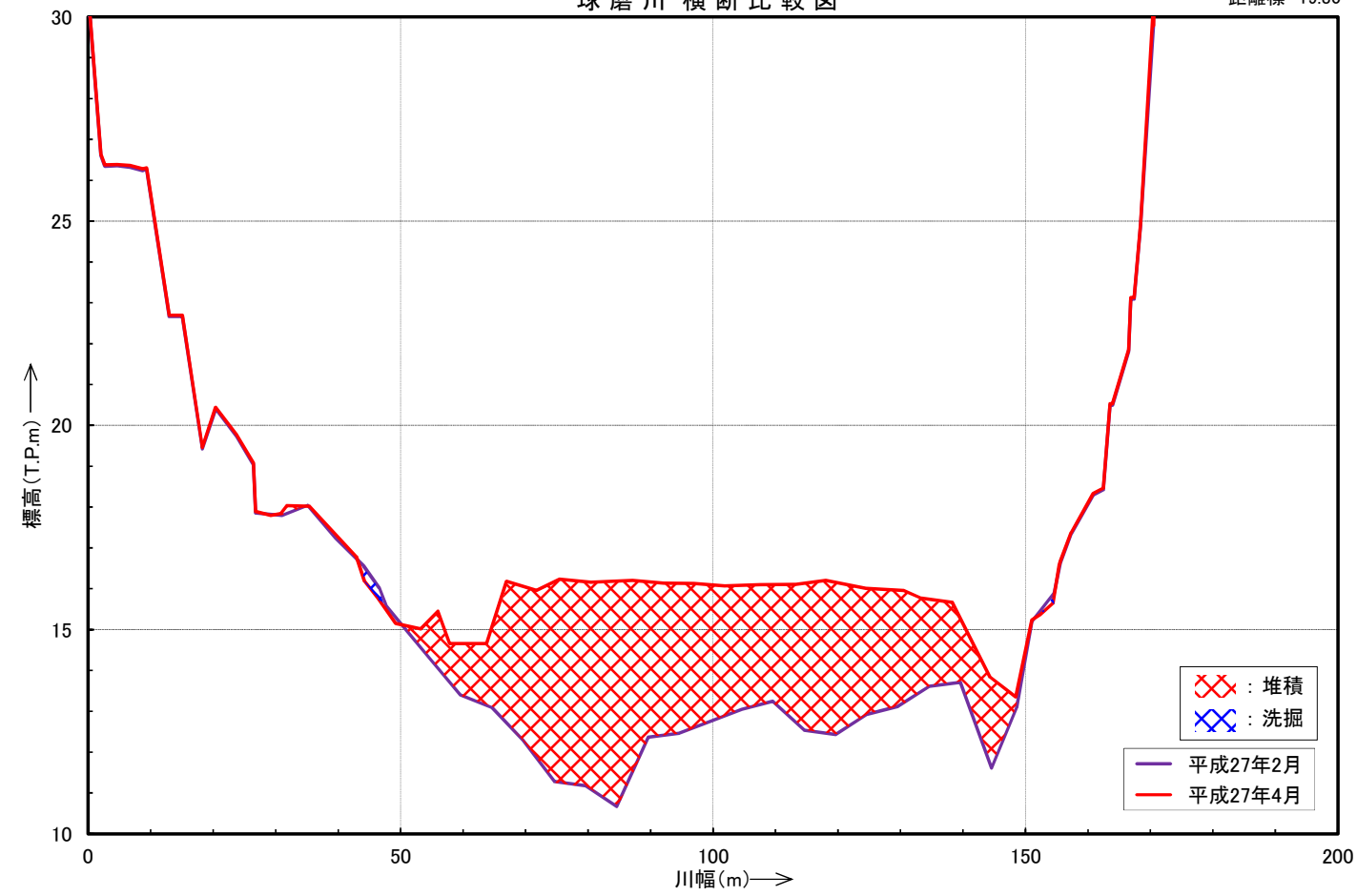
球磨川 横断比較図

距離標 19.60



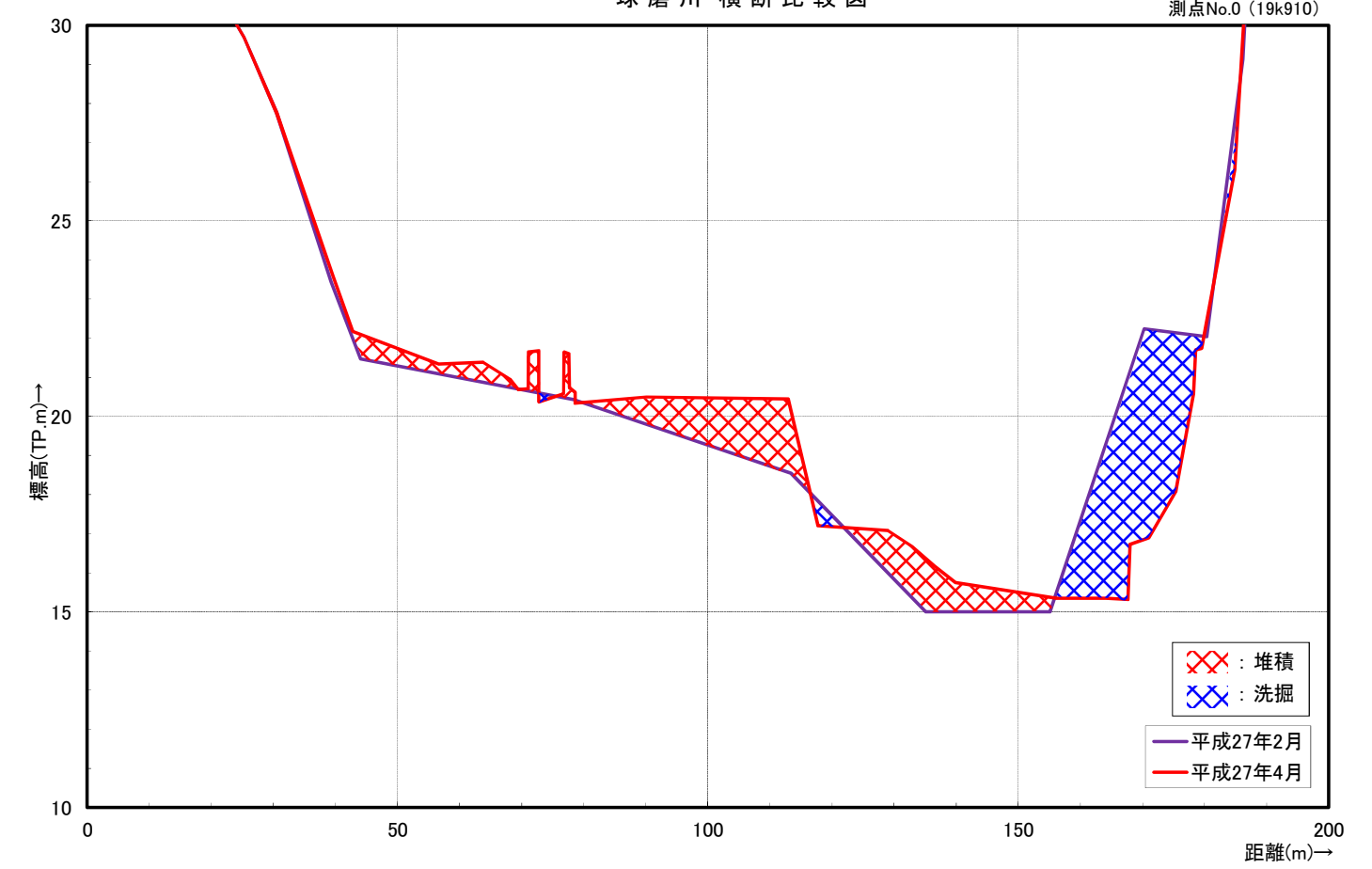
球磨川 横断比較図

距離標 19.80



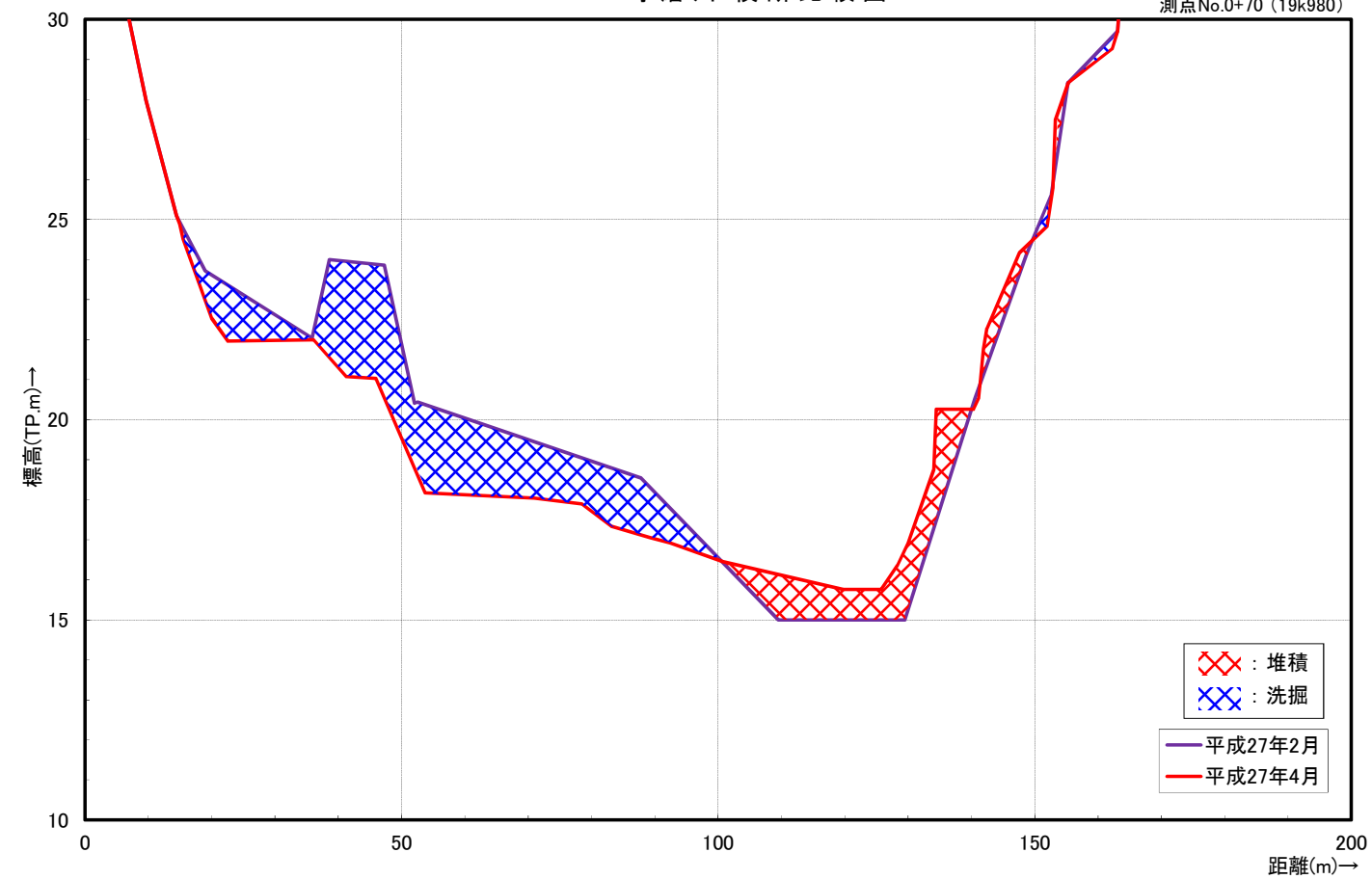
球磨川 横断比較図

測点No.0 (19k910)



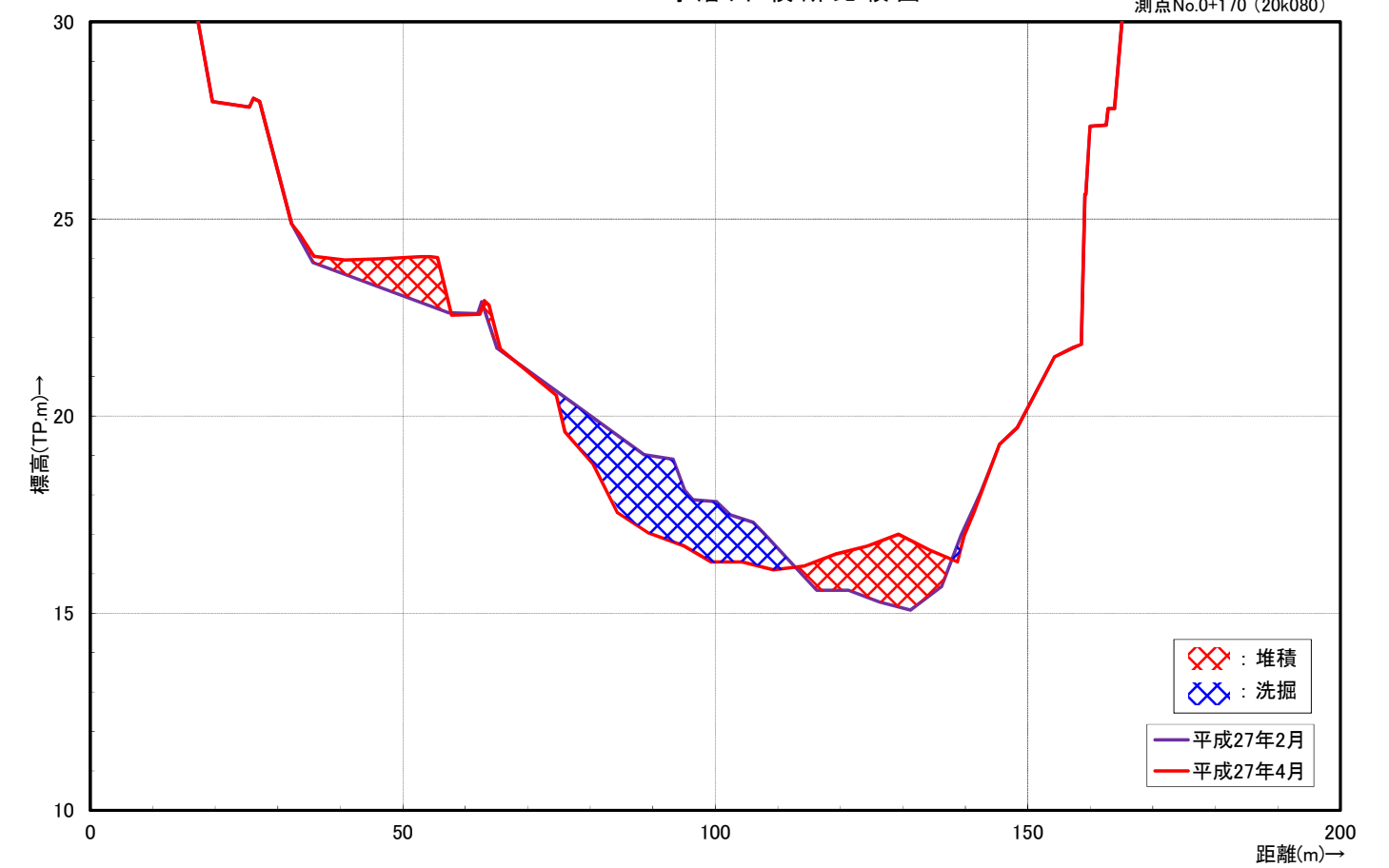
球磨川 横断比較図

測点No.0+70 (19k980)



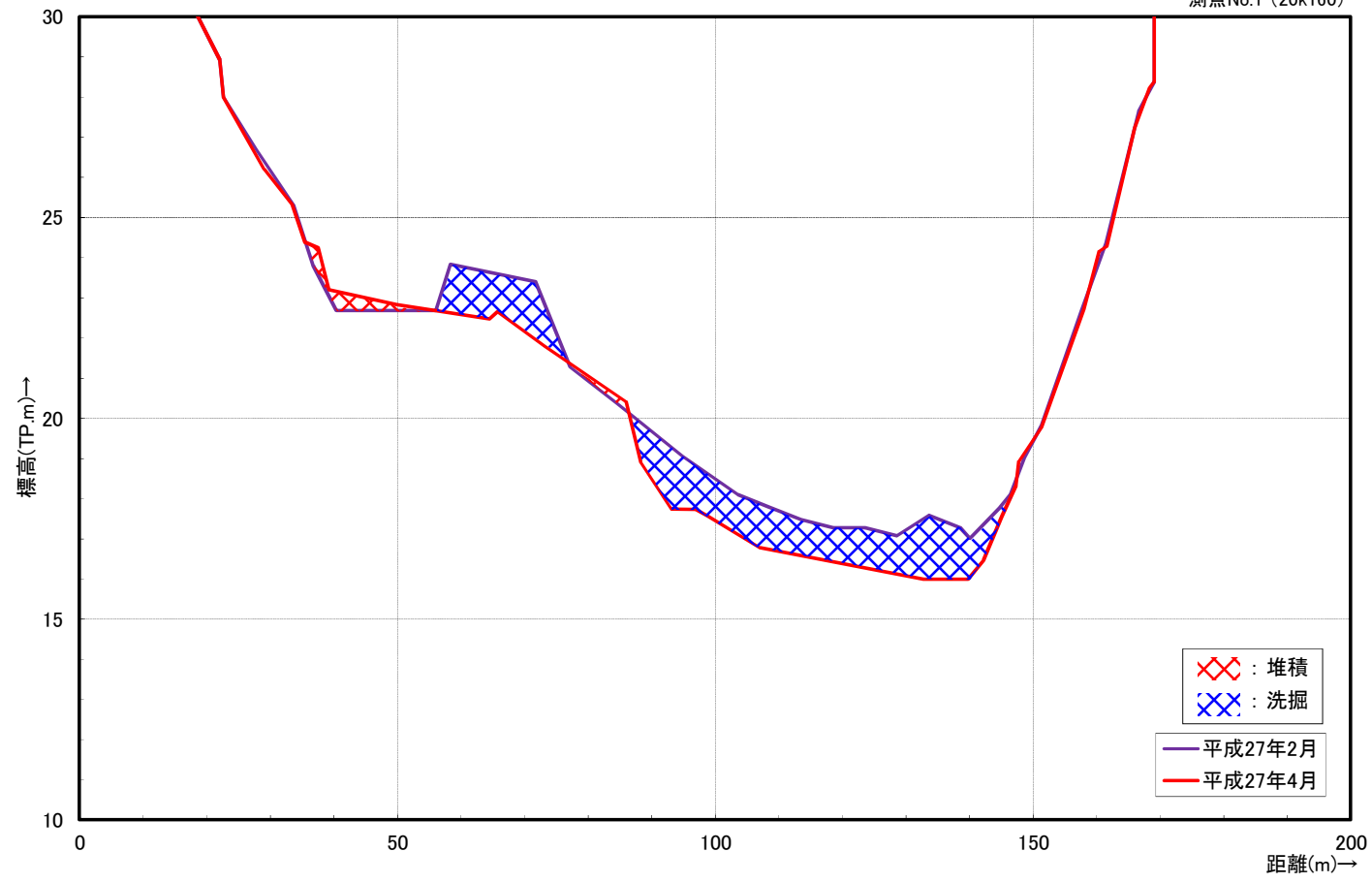
球磨川 横断比較図

測点No.0+170 (20k080)



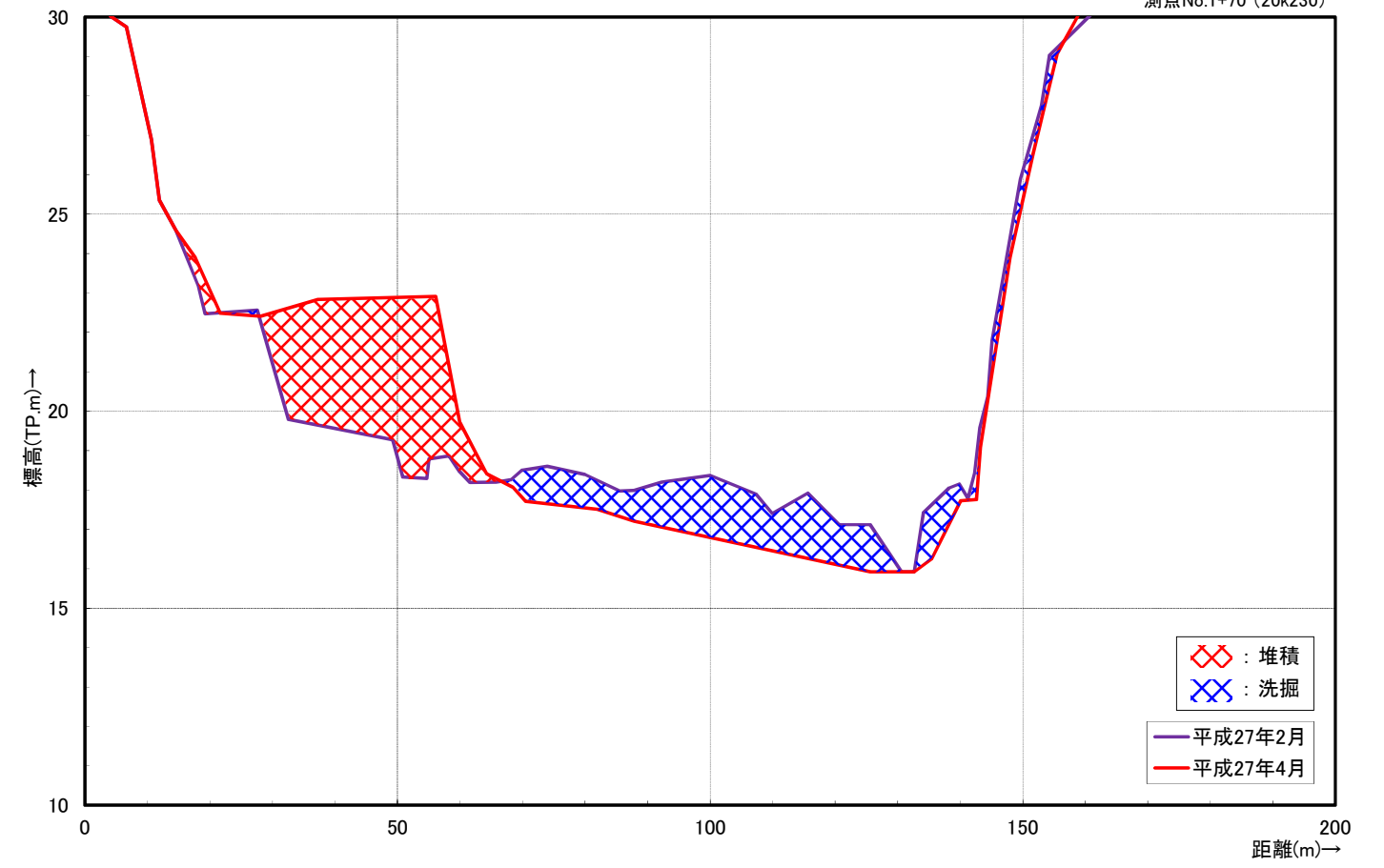
球磨川 横断比較図

測点No.1 (20k160)



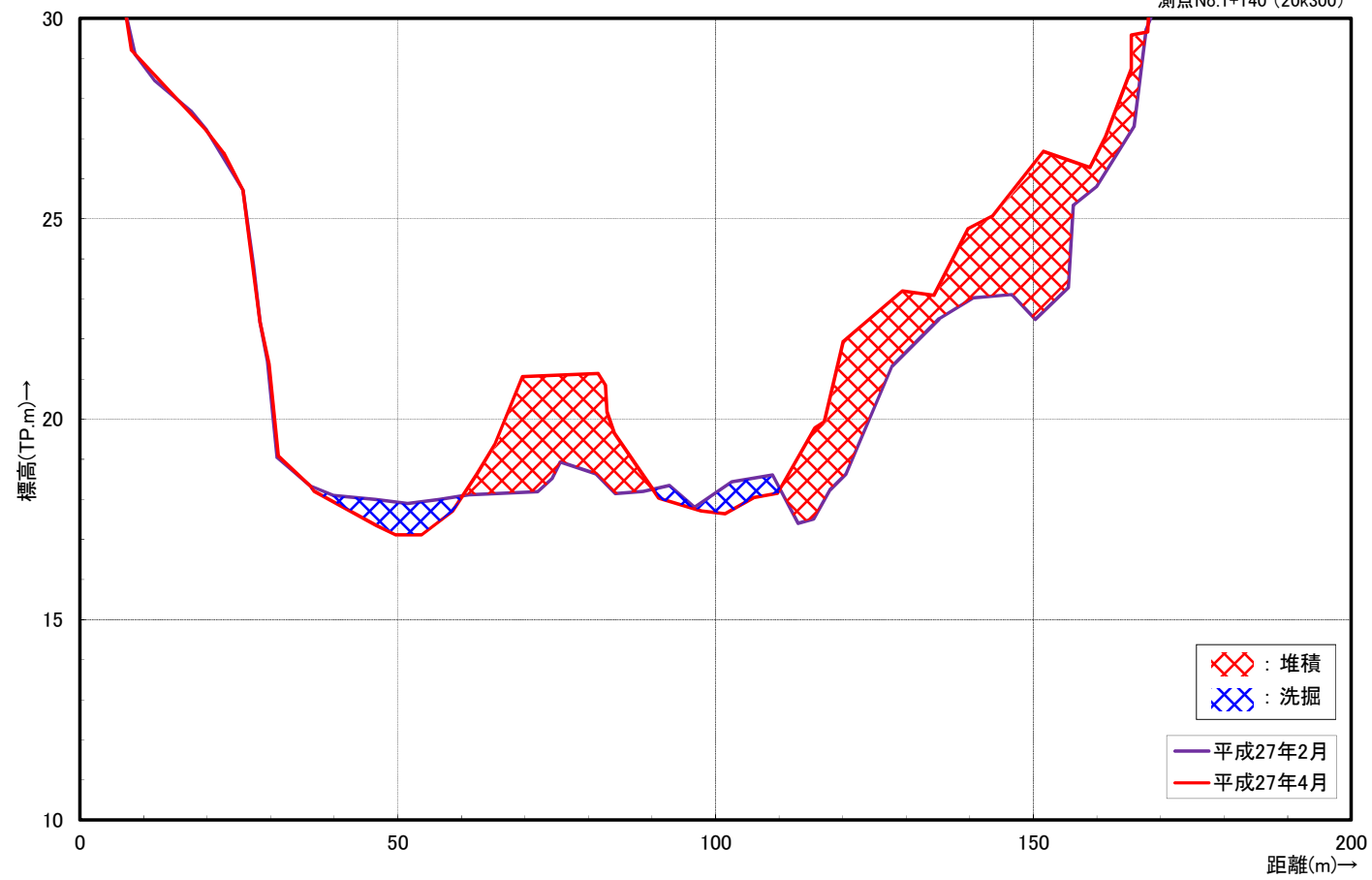
球磨川 横断比較図

測点No.1+70 (20k230)



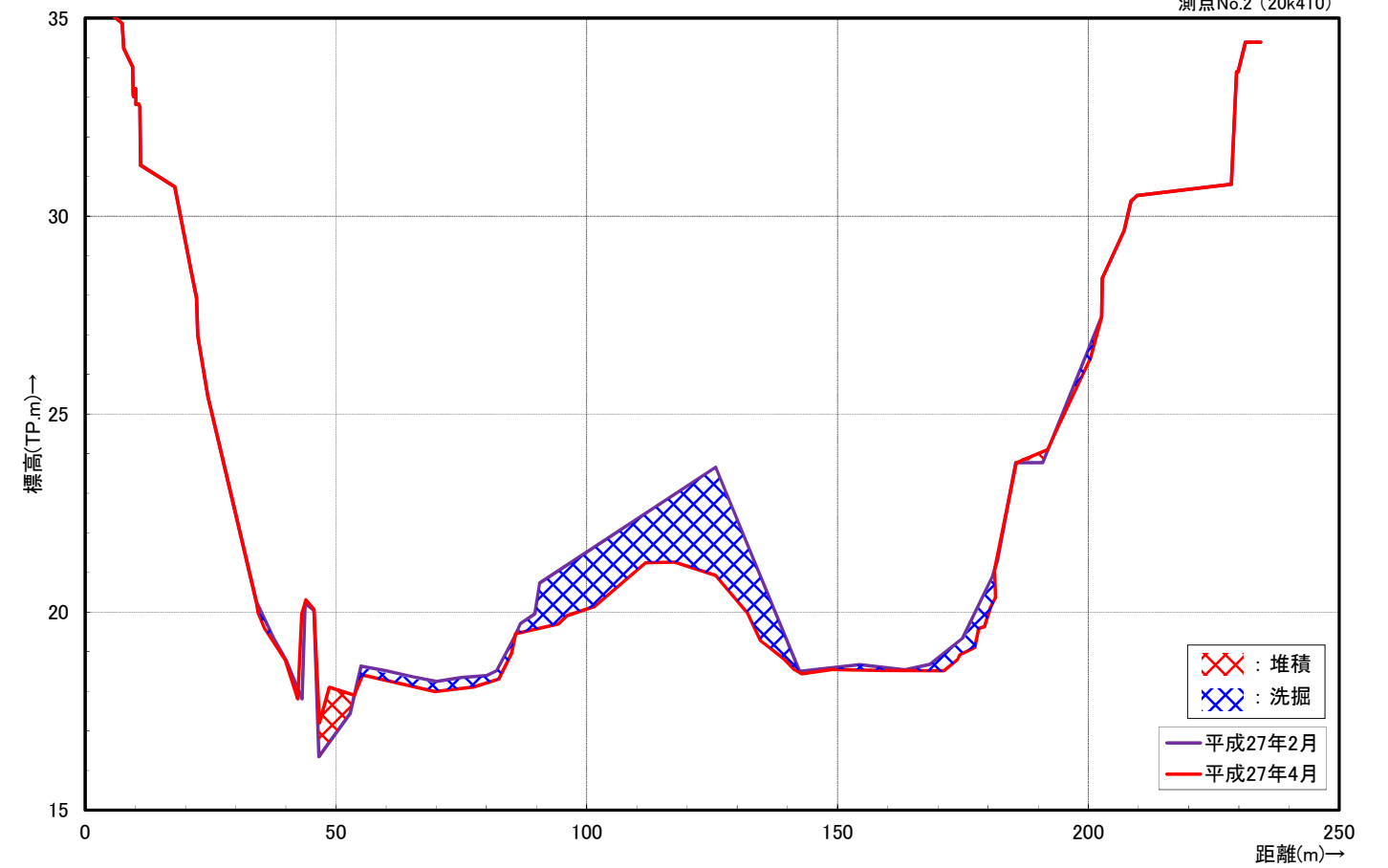
球磨川 横断比較図

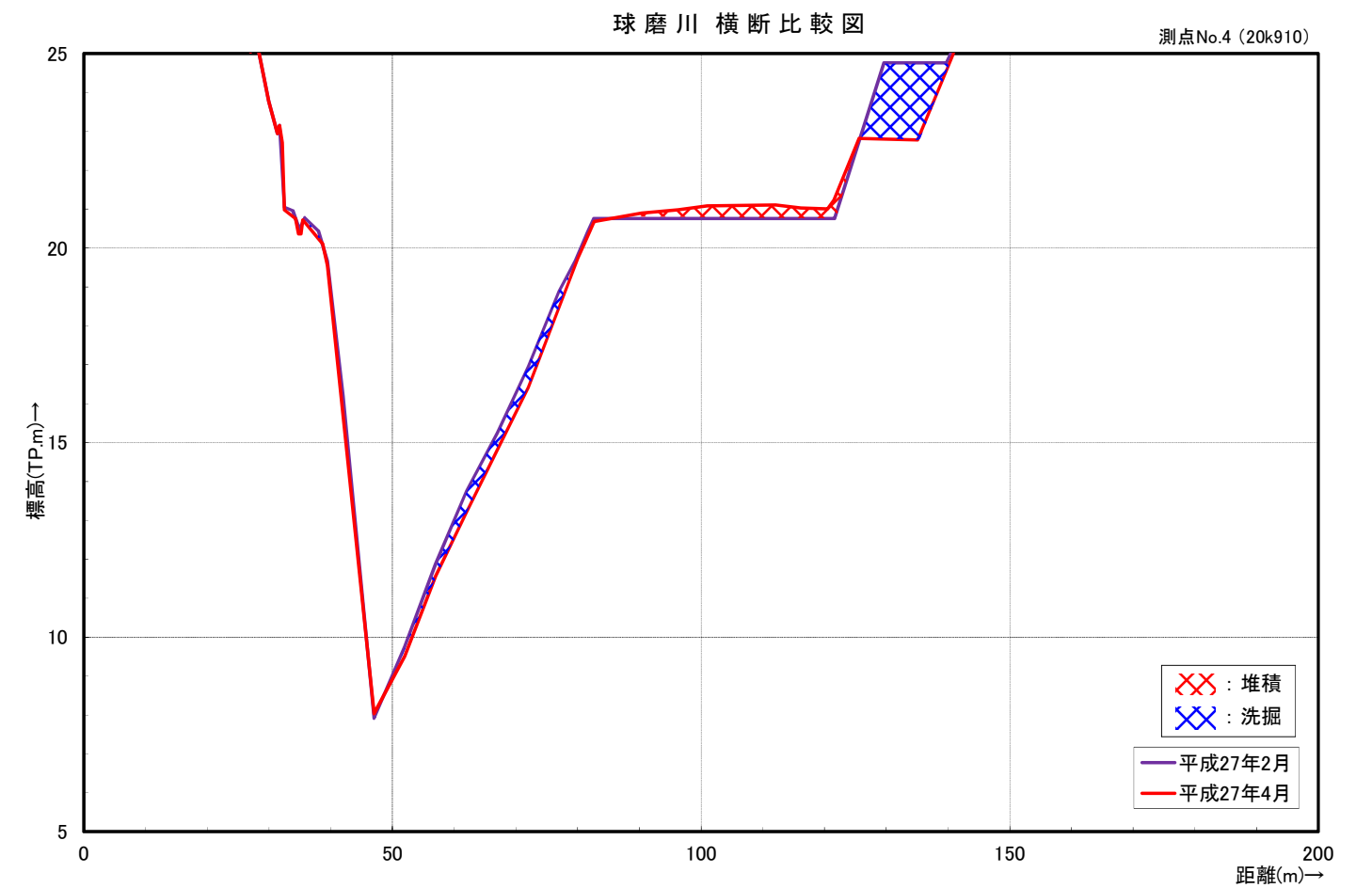
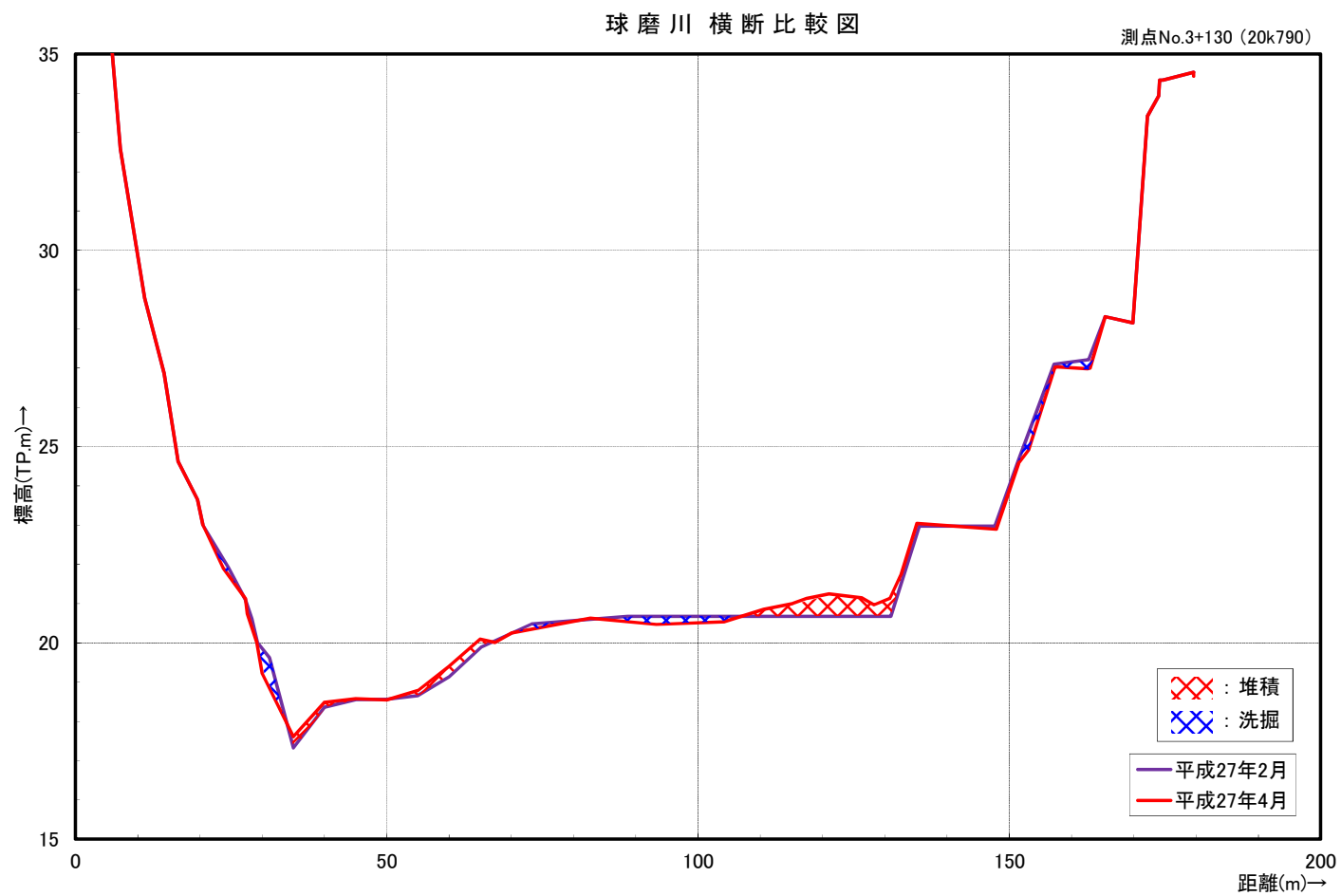
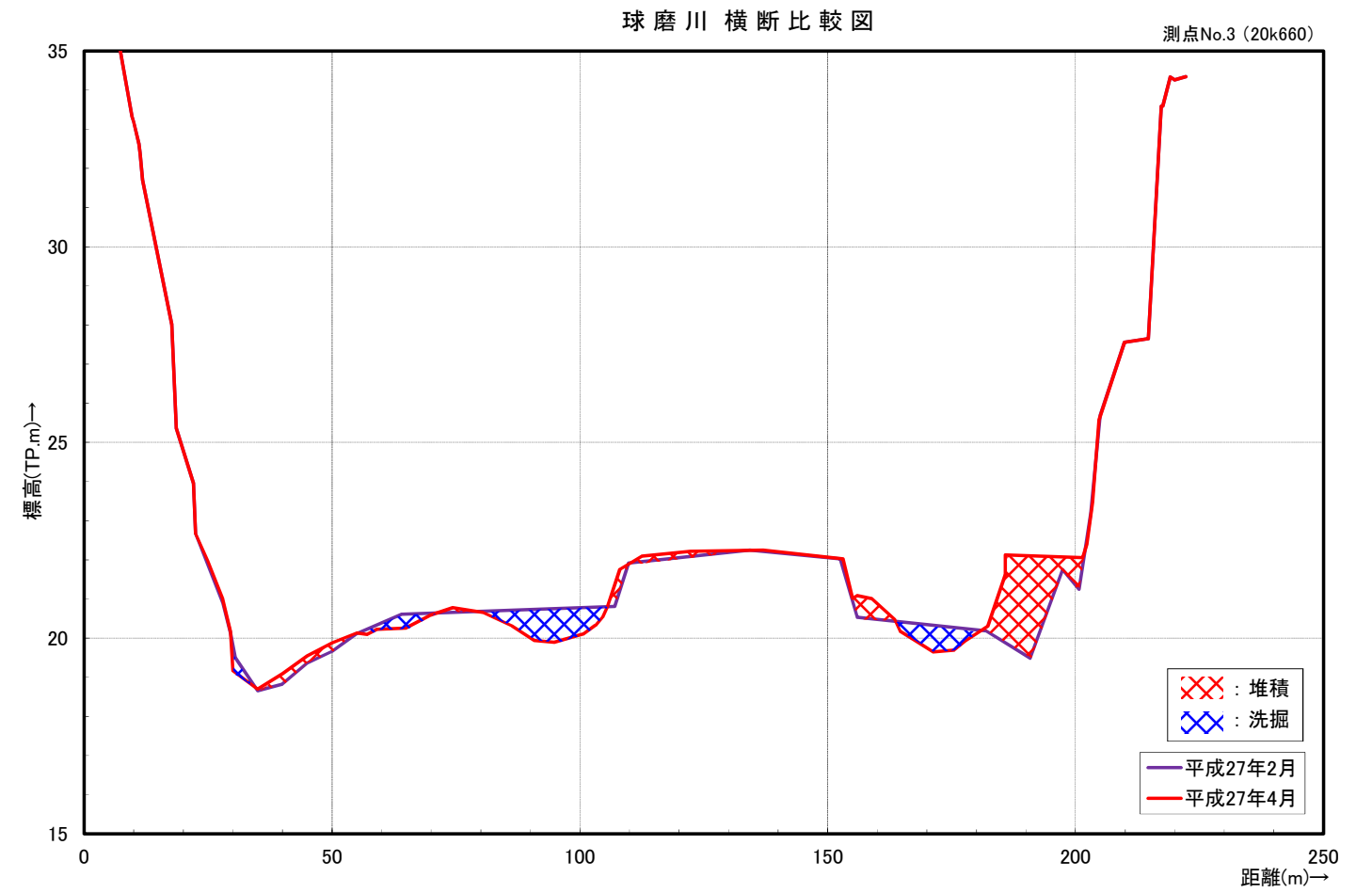
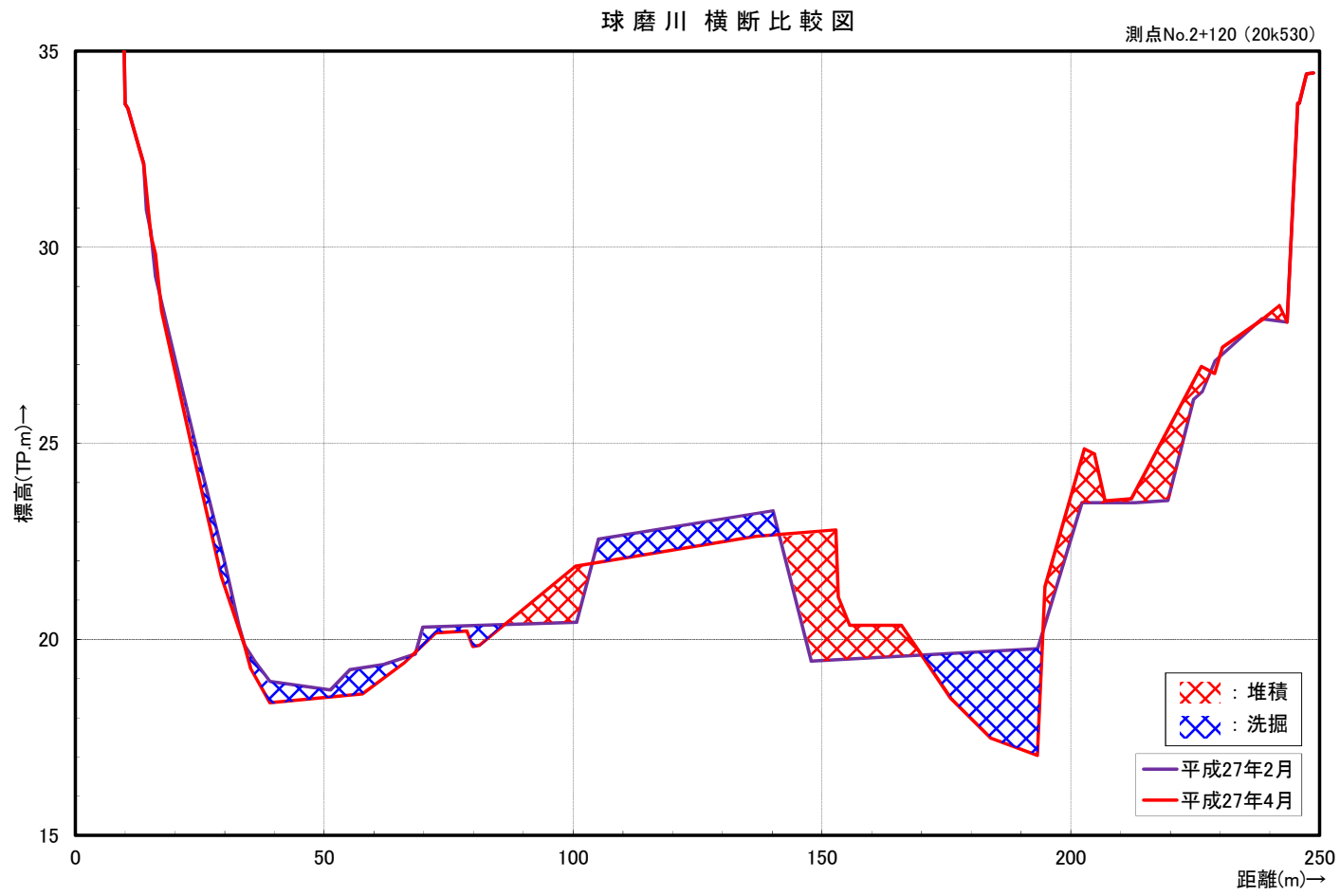
測点No.1+140 (20k300)



球磨川 横断比較図

測点No.2 (20k410)





球磨川 横断比較図

測点No.4+150 (21k060)

