

Implementacja częściowej kompresji JPEG

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W tytule zawarte są parametry, dla których został wykonany test algorytmu kompresji. Wartość True dla QY/QC oznacza przekazania do algorytmu konkretnej tablicy kwantyzacji, natomiast False - użycie domyślnej macierzy jedynek.

W celu uzyskania jak najlepszych wyników, fragmenty obrazu zostały wybrane losowo.

Poniżej zostały przedstawione wyniki kompresji częściowej kompresji JPEG z różnymi parametrami, na konkretnych warstwach.

Pod fragmentem danej warstwy jest podana liczba określona w procentach jako stosunek długości skompresowanego wektora warstwy względem adekwatnej warstwy oryginalnego obrazu.

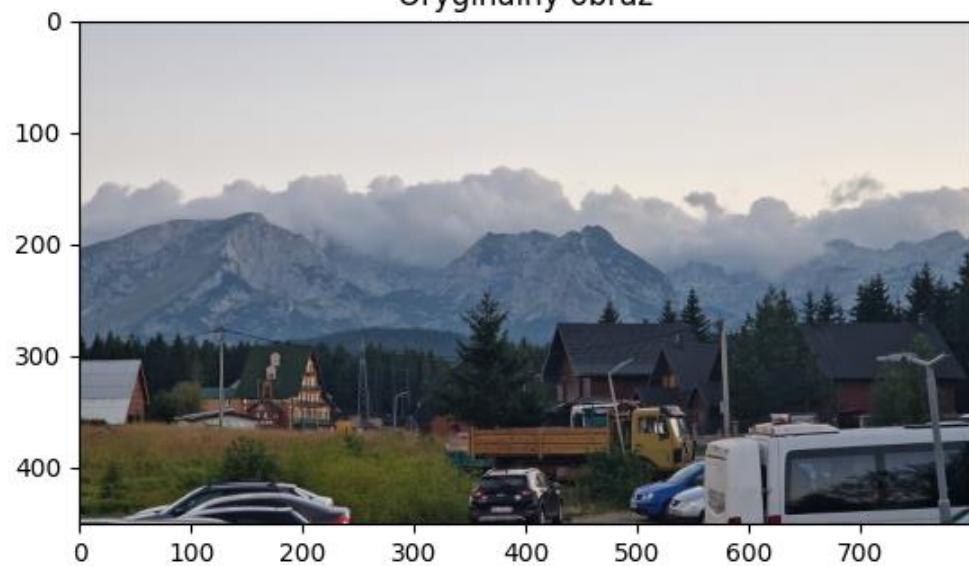
Jak widać, mimo faktu, iż wektor "skompresowany" warstwy Y jest dłuższy od oryginalnego, to już warstwy Cb oraz Cr są znacznie mniejsze. Finalnie nakładając wszystkie 3 warstwy na siebie otrzymujemy obraz jakościowo nieodbiegający od oryginału.

Uwzględniając długości wektorów warstw fragmentów obrazów finalny rozmiar skompresowanej wersji jest mniejszy względem oryginału.

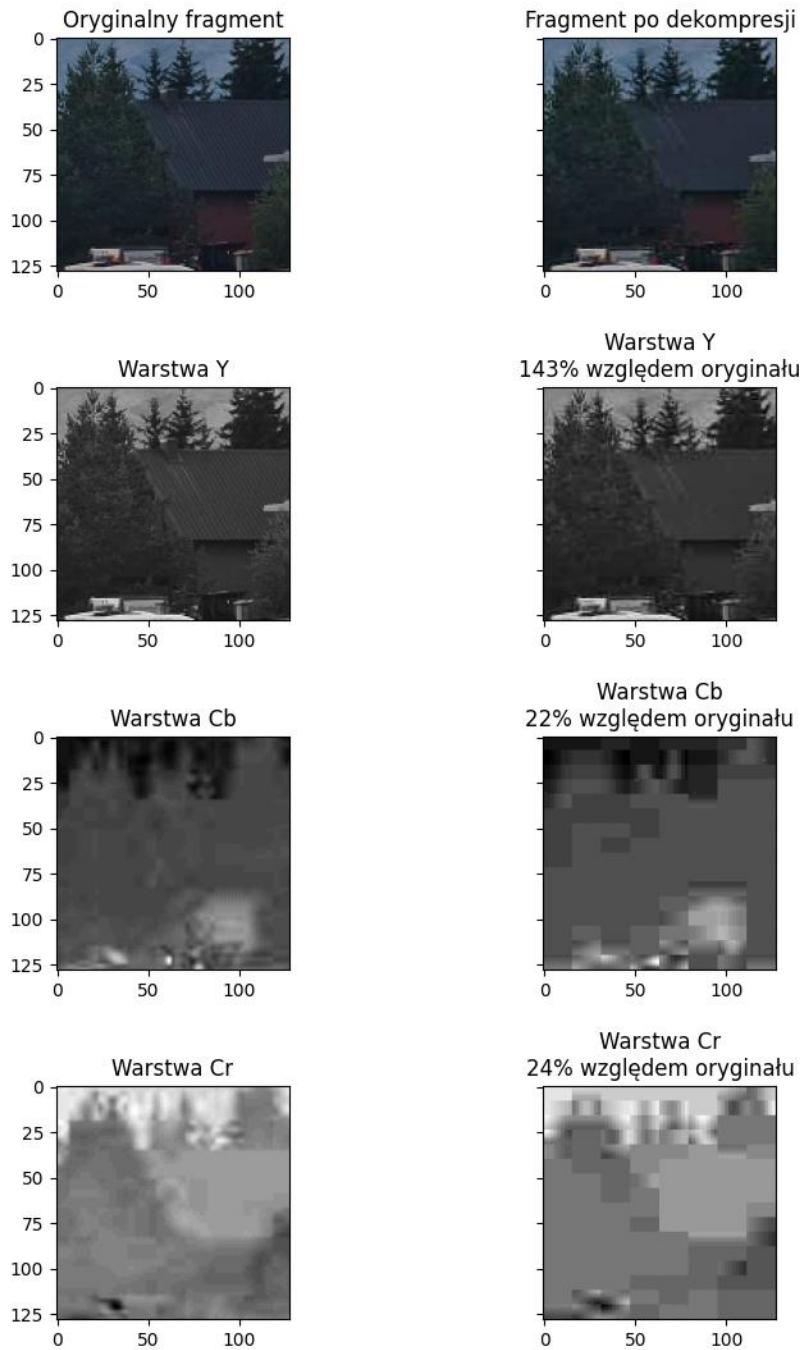
Najgorszymi wynikami okazał się wariant ratio 4:4:4 oraz QY, QC jako macierz jedynek.

W celu określenia procentowego skrócenia dla warstw użyty został algorytm RLE.

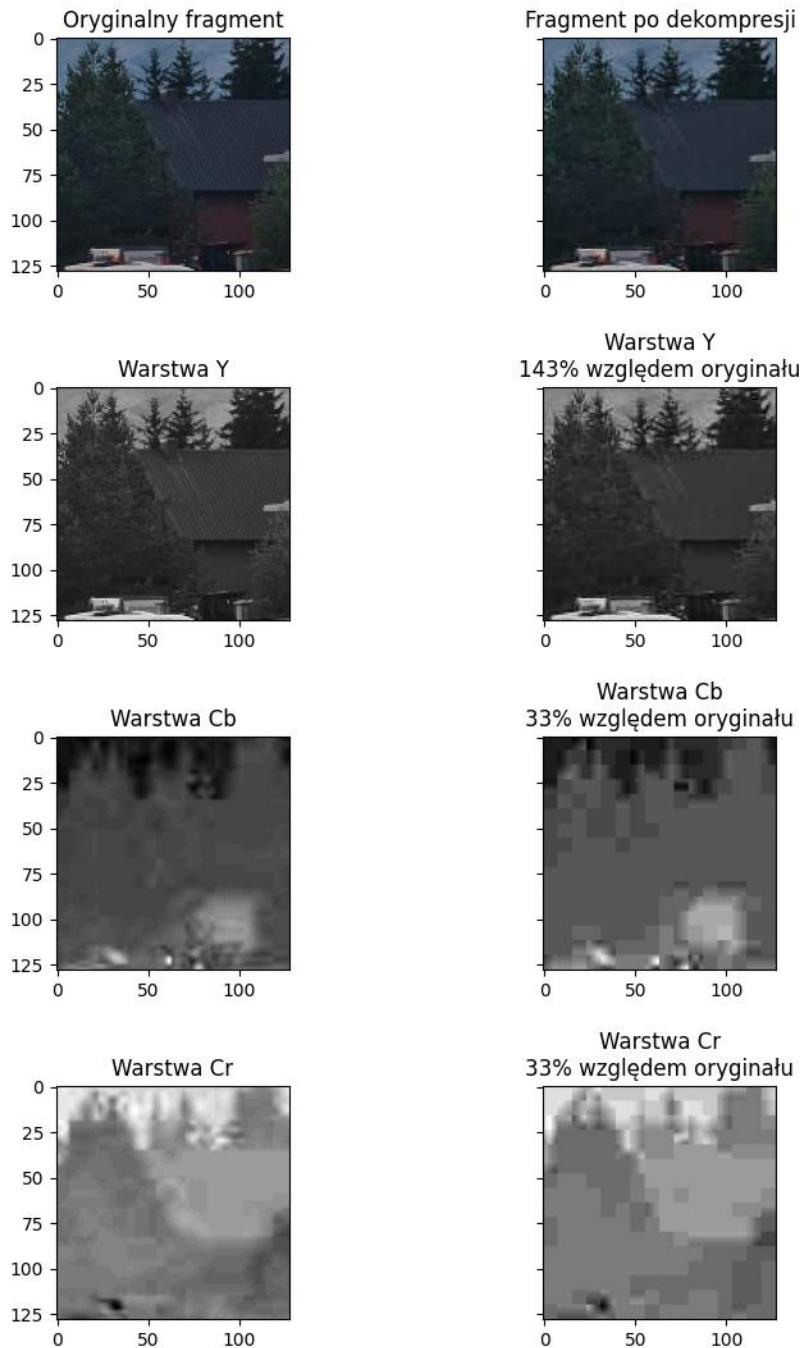
Oryginalny obraz



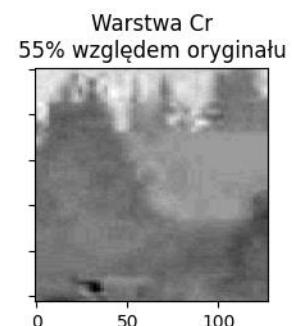
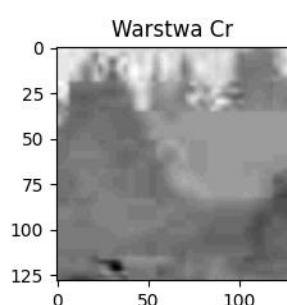
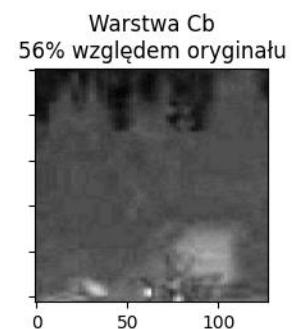
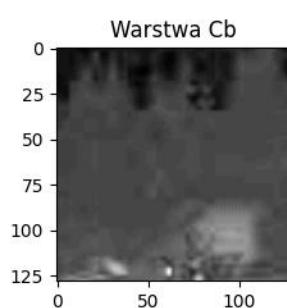
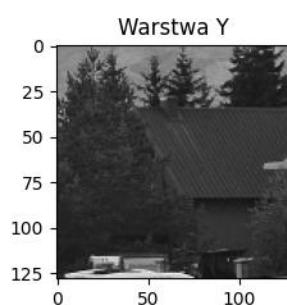
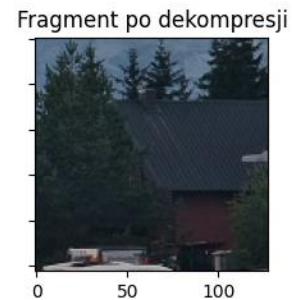
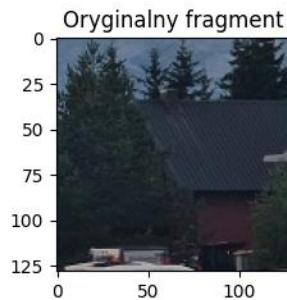
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Ratio: 4:2:2, QY: True, QC: True



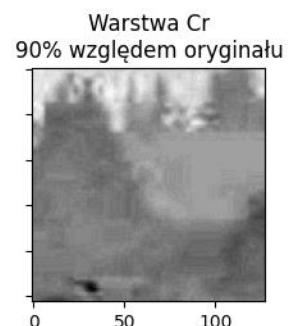
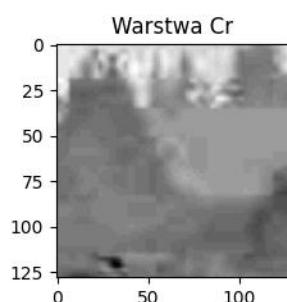
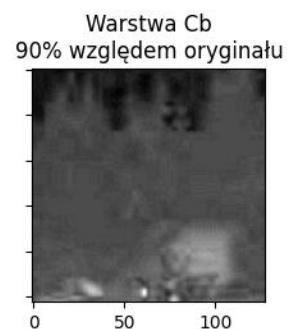
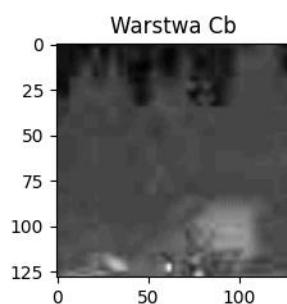
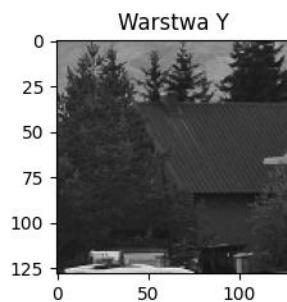
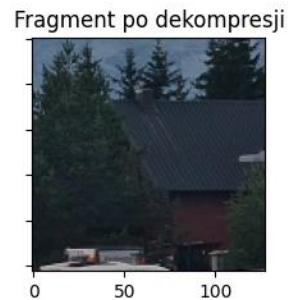
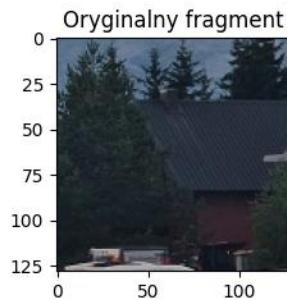
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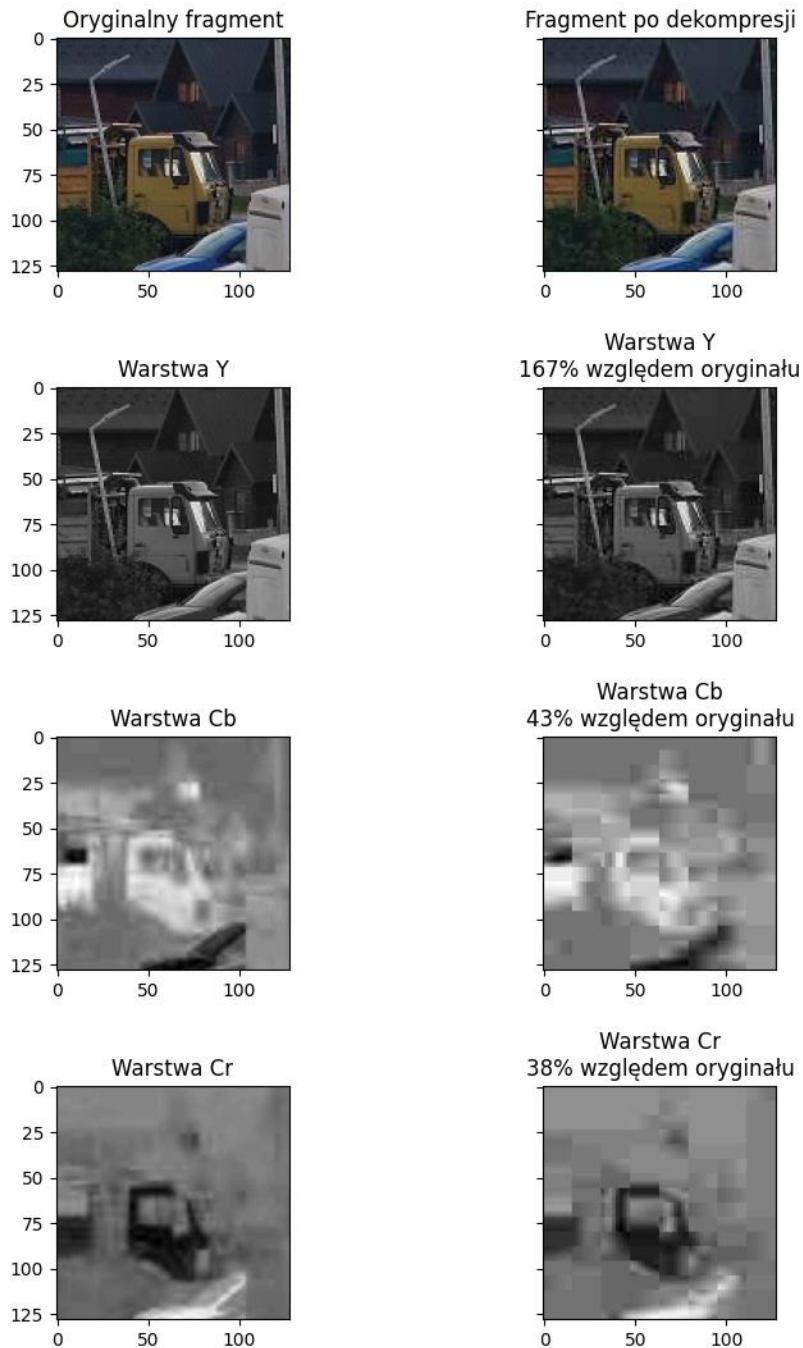
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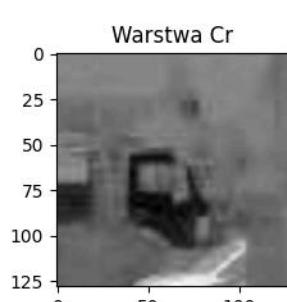
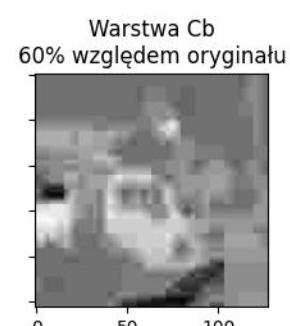
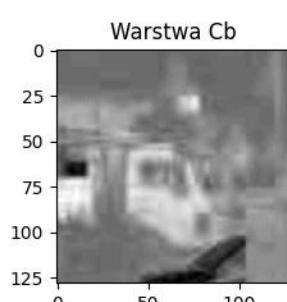
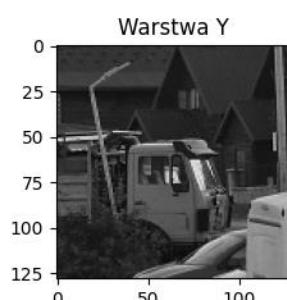
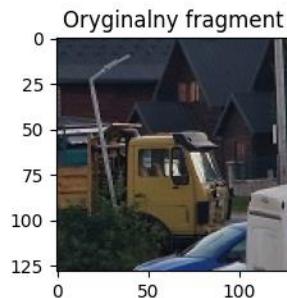
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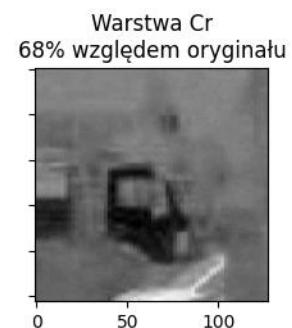
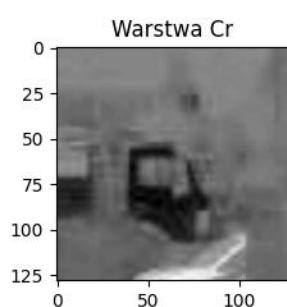
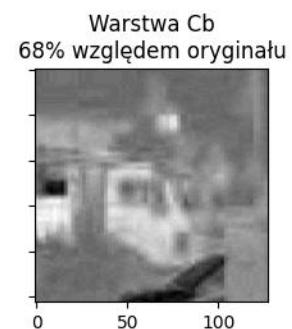
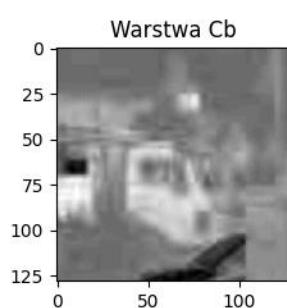
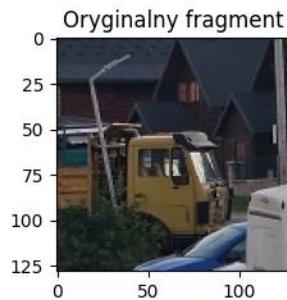
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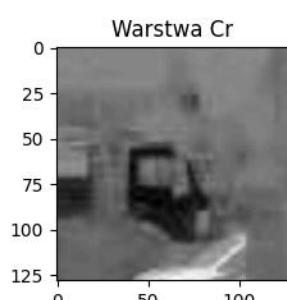
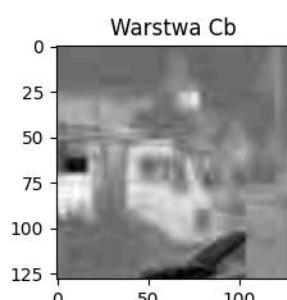
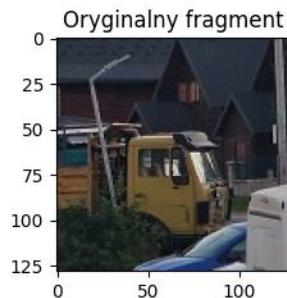
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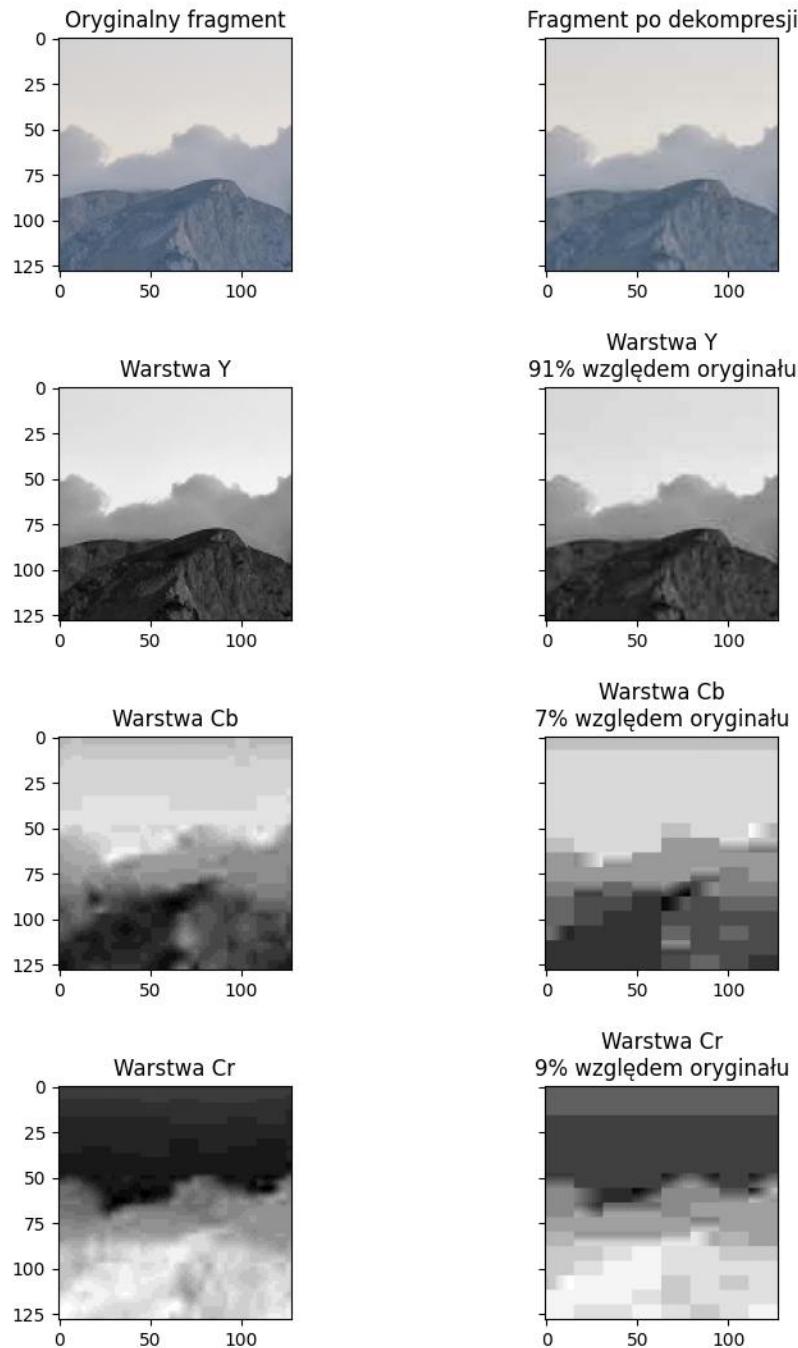
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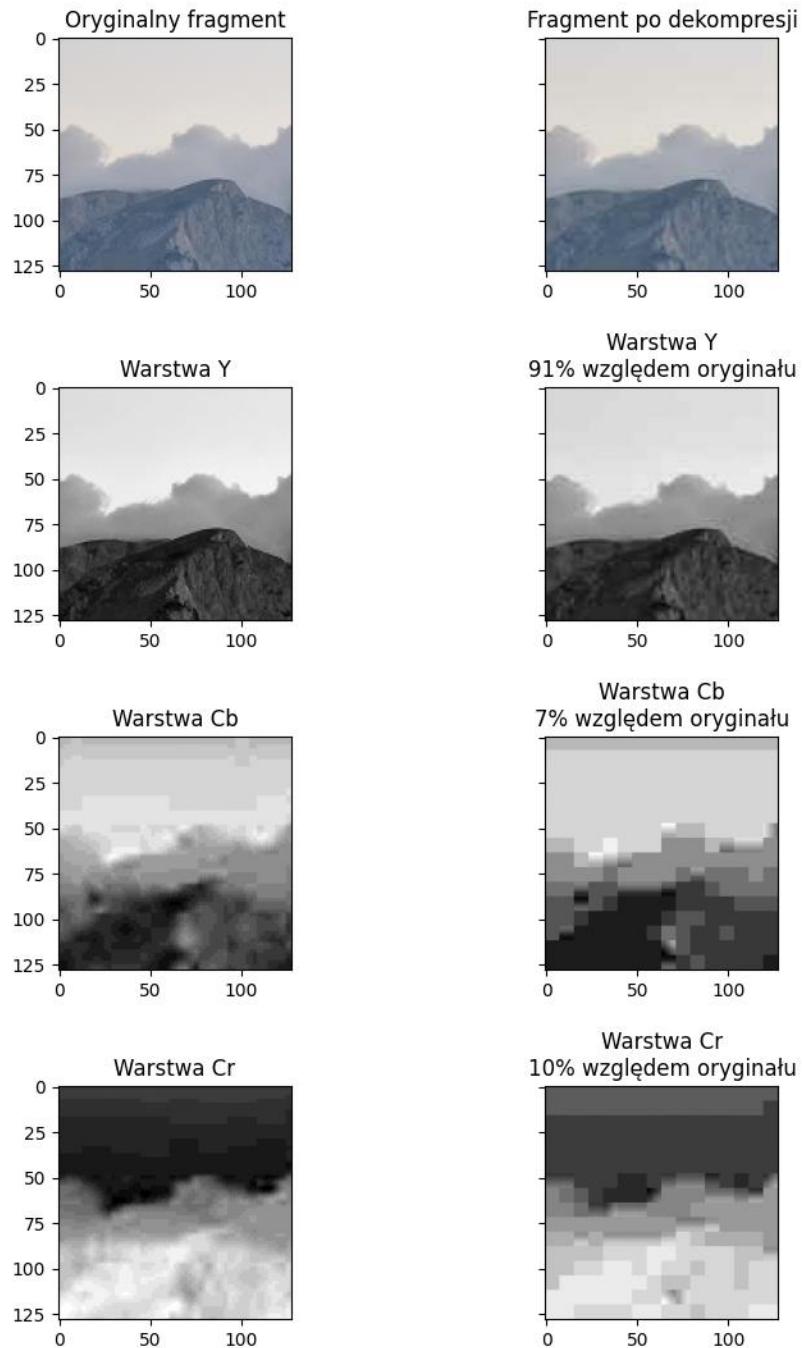
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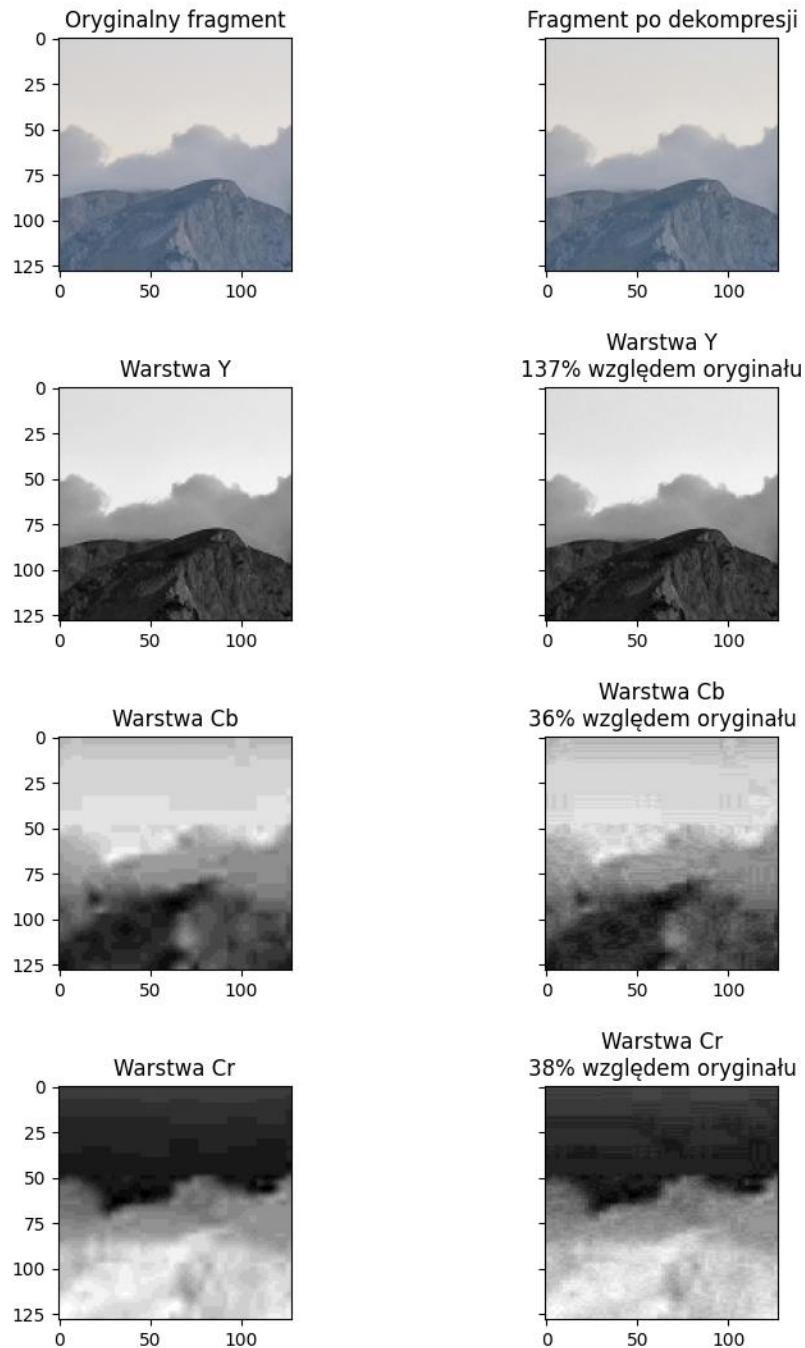
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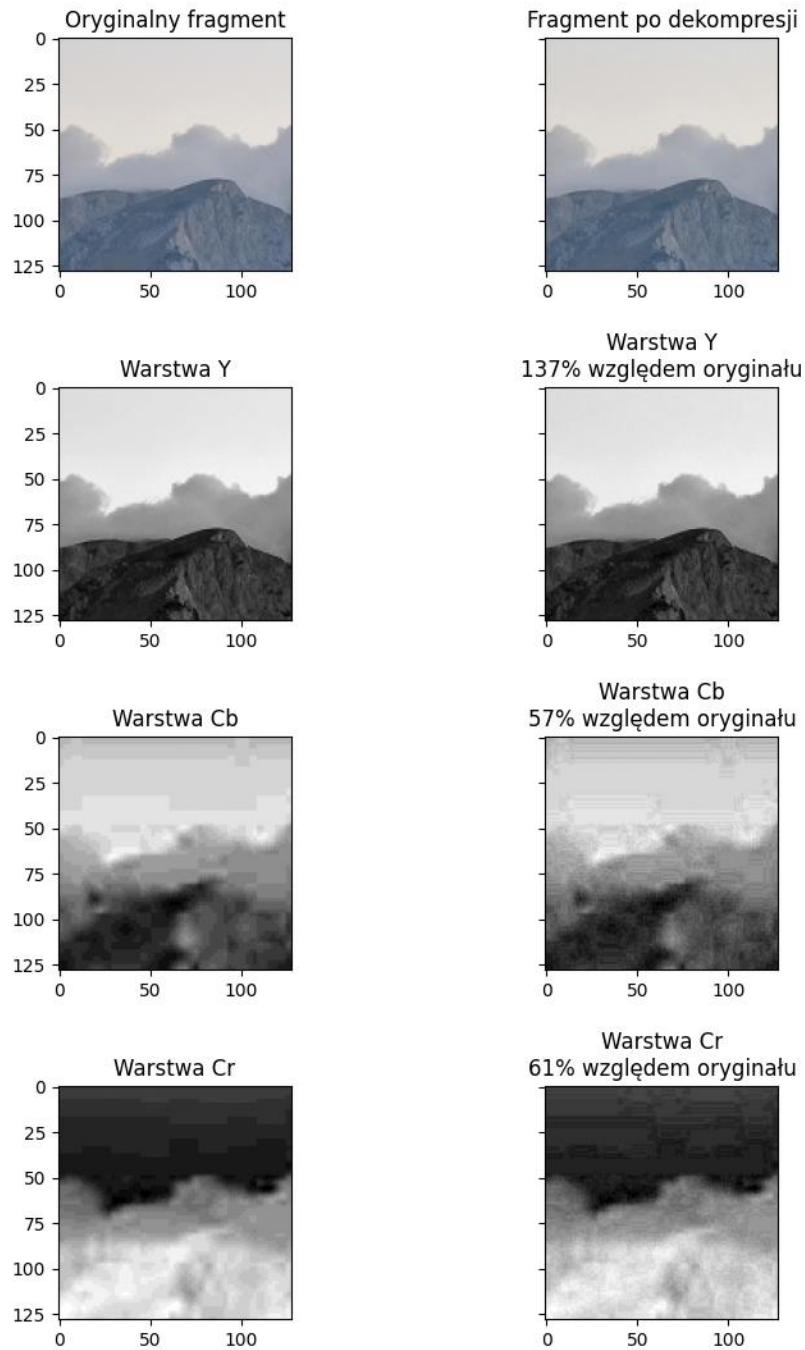
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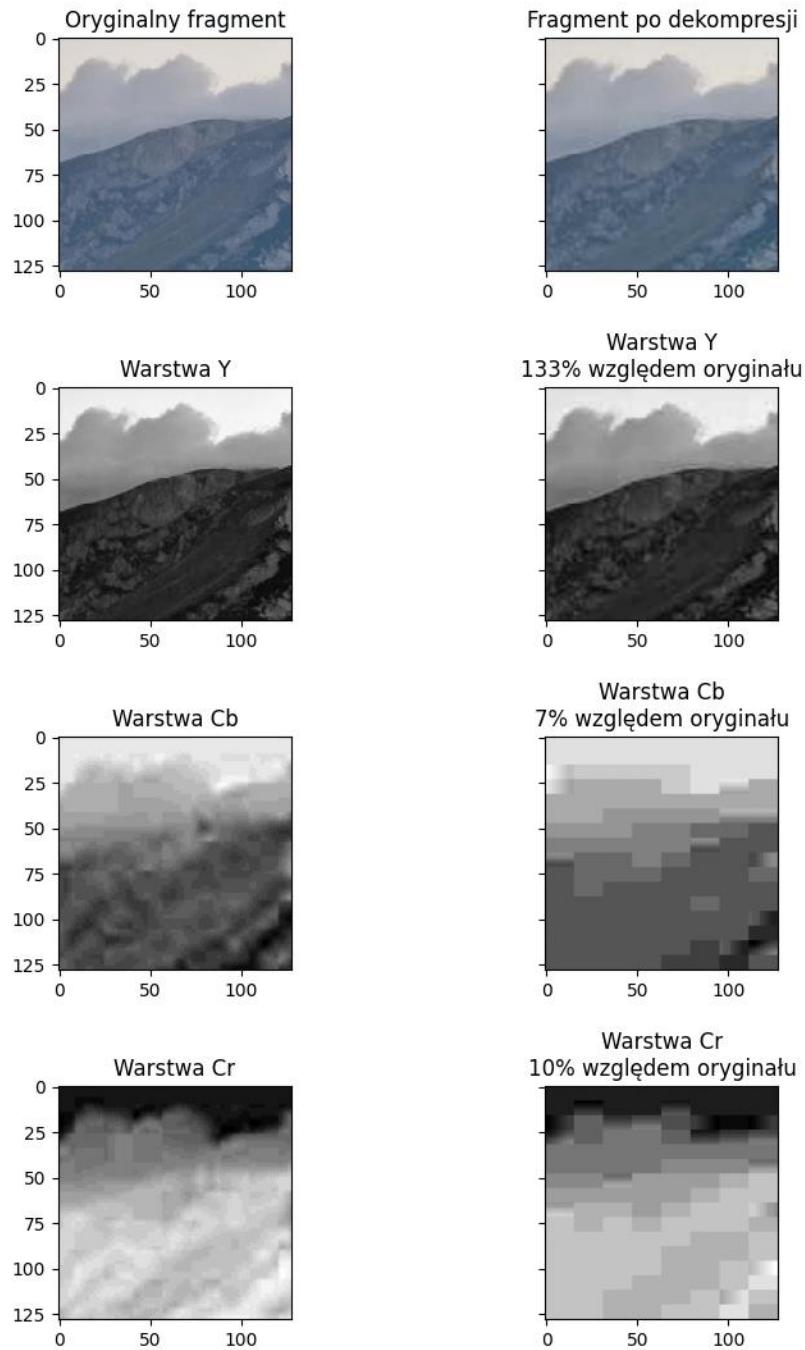
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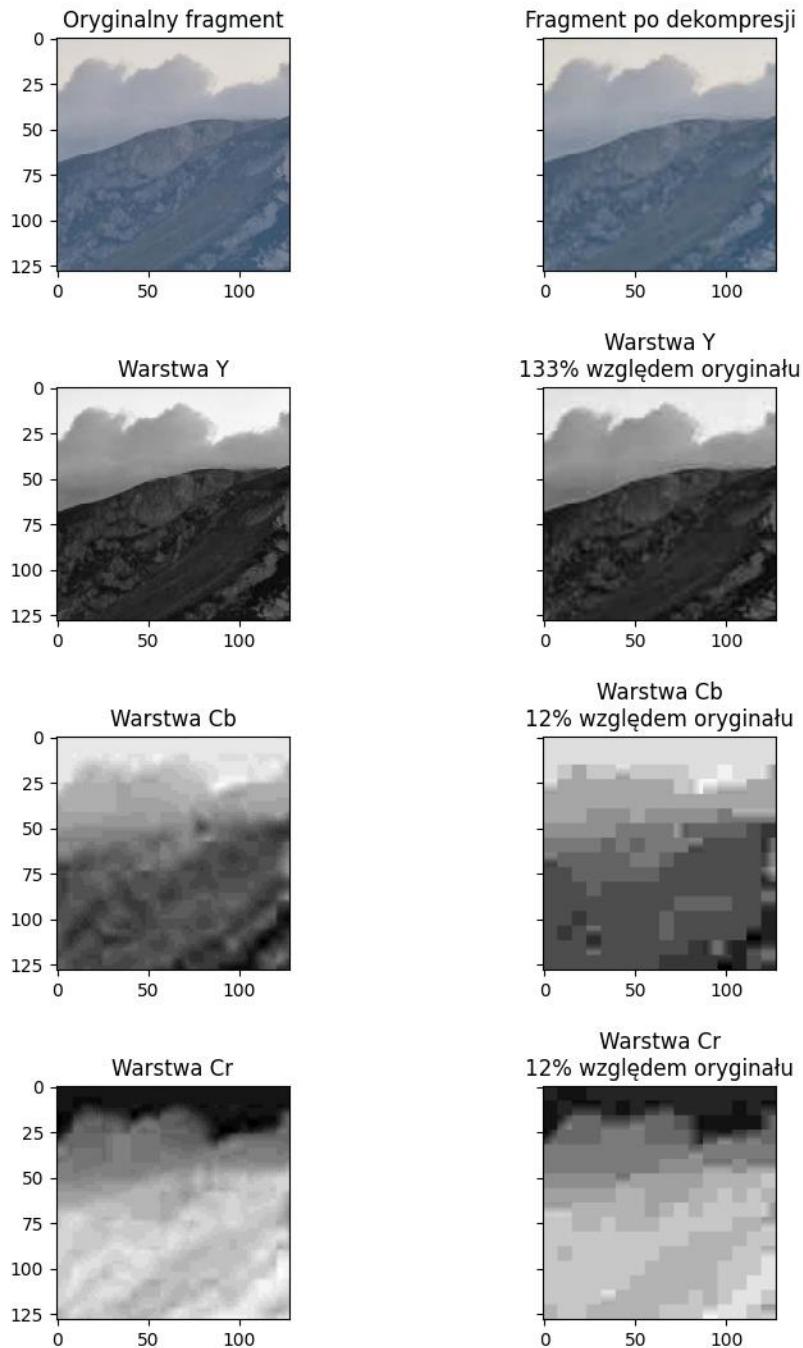
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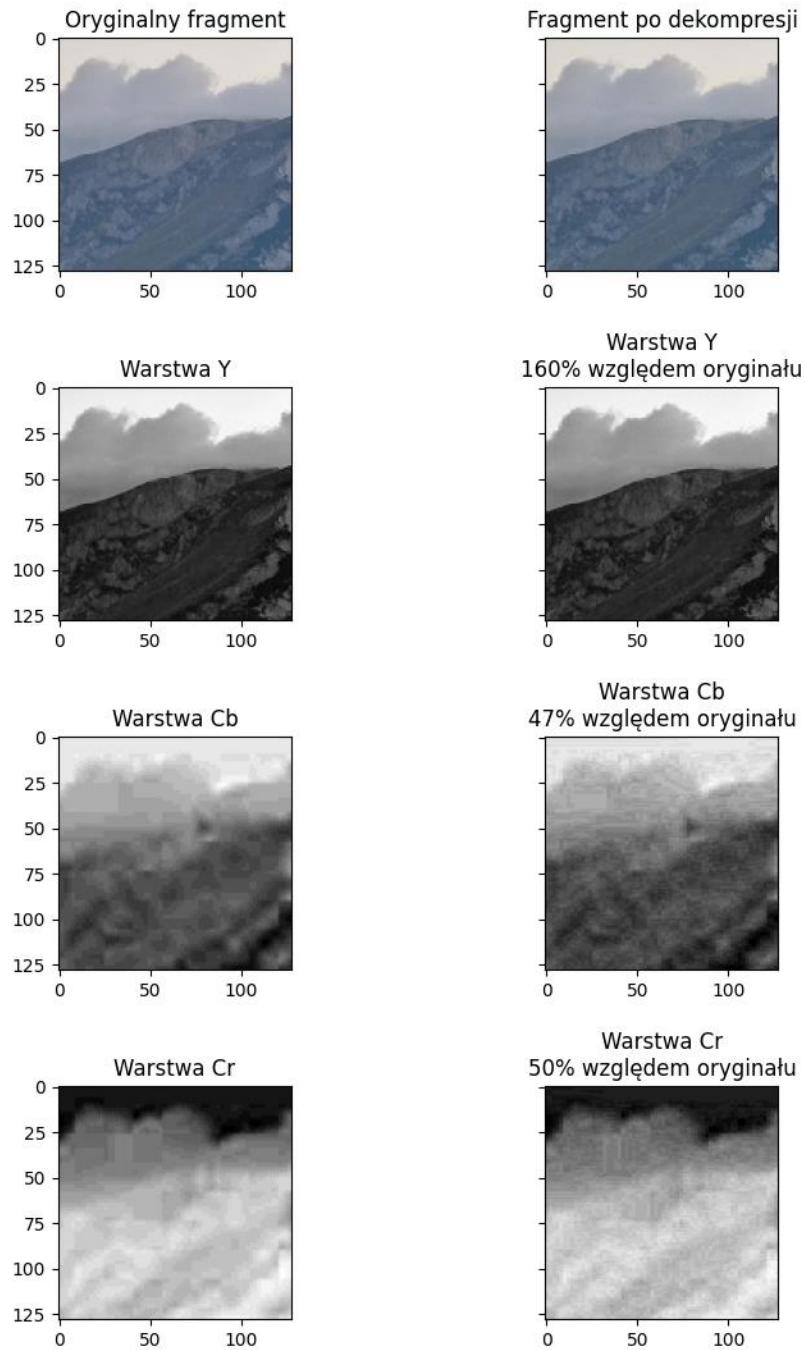
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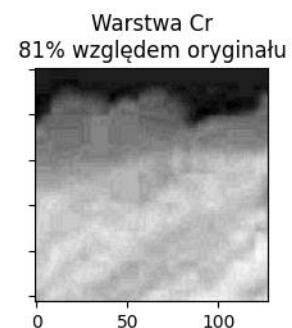
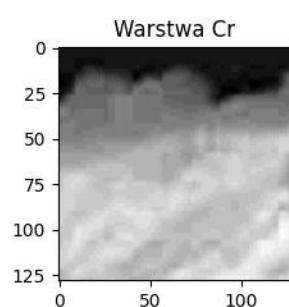
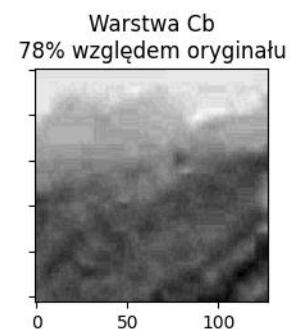
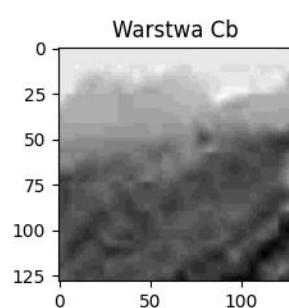
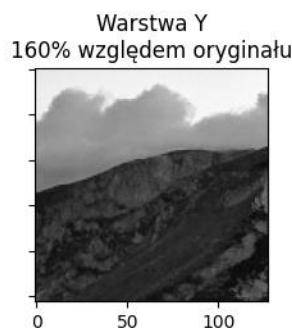
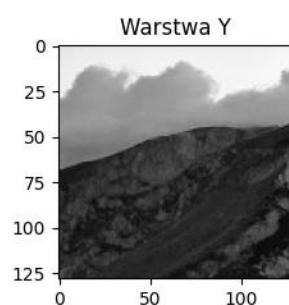
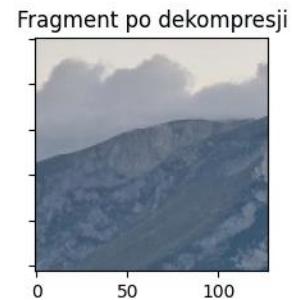
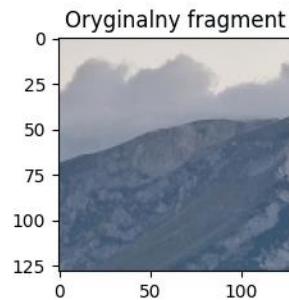
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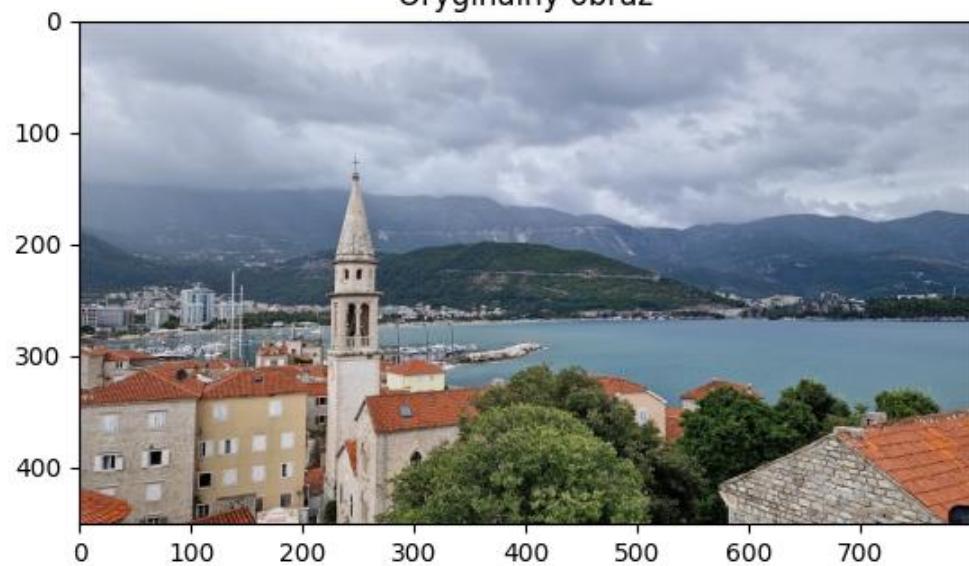
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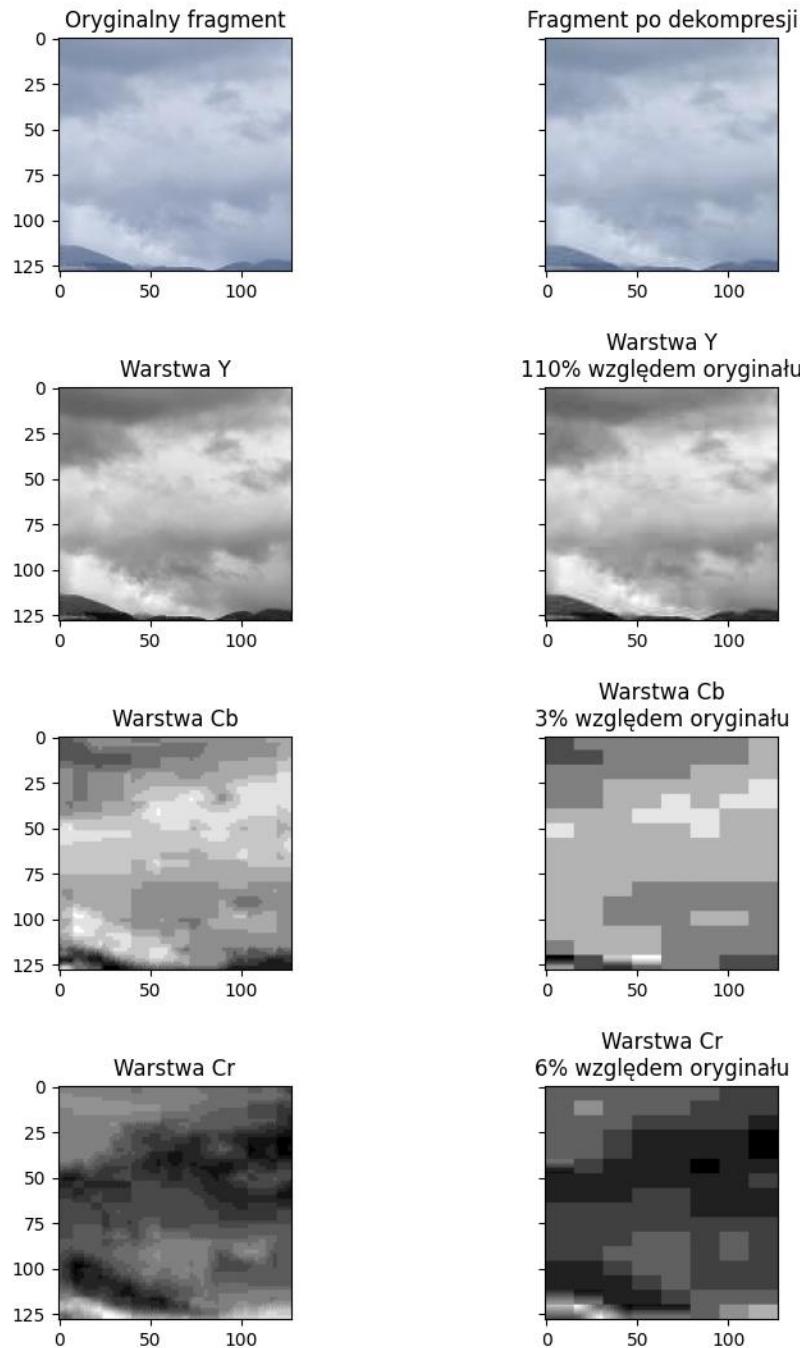
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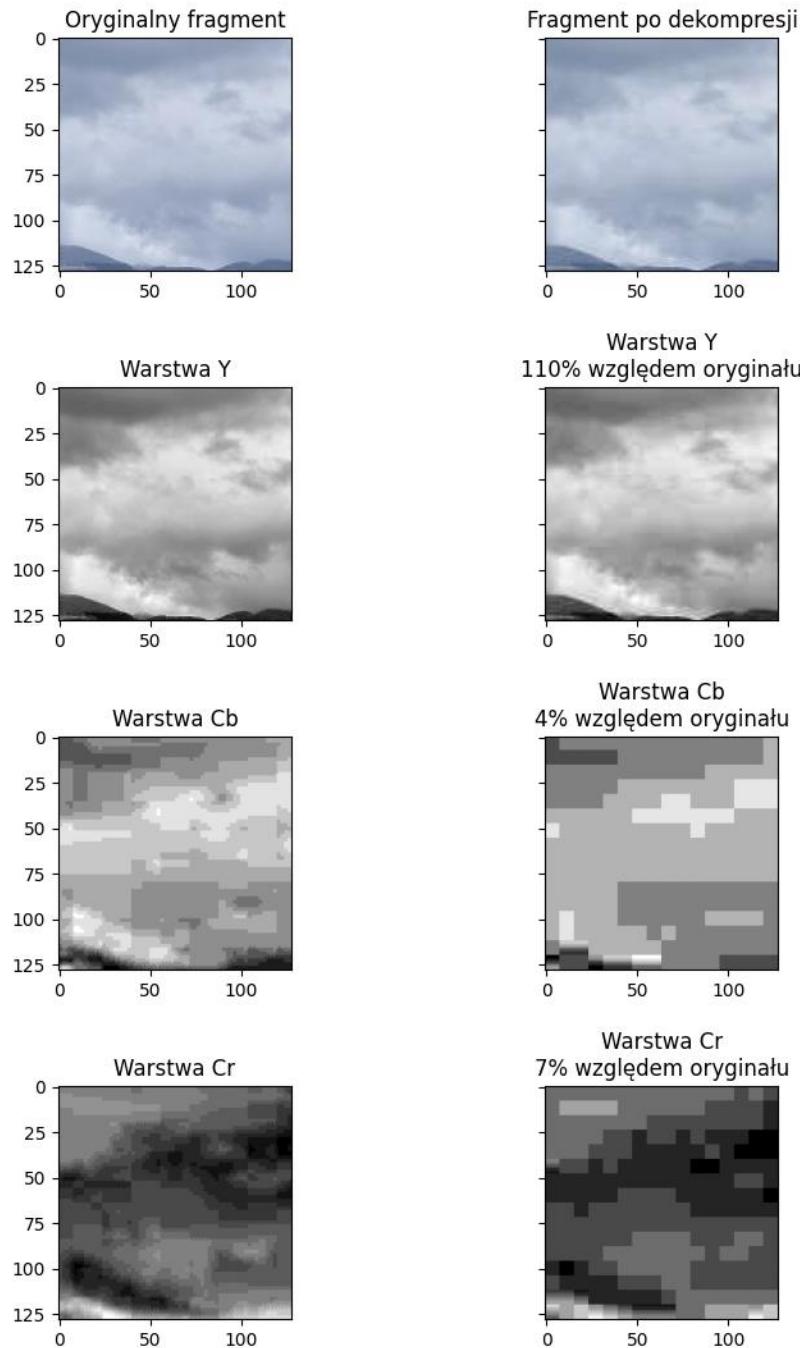
Oryginalny obraz



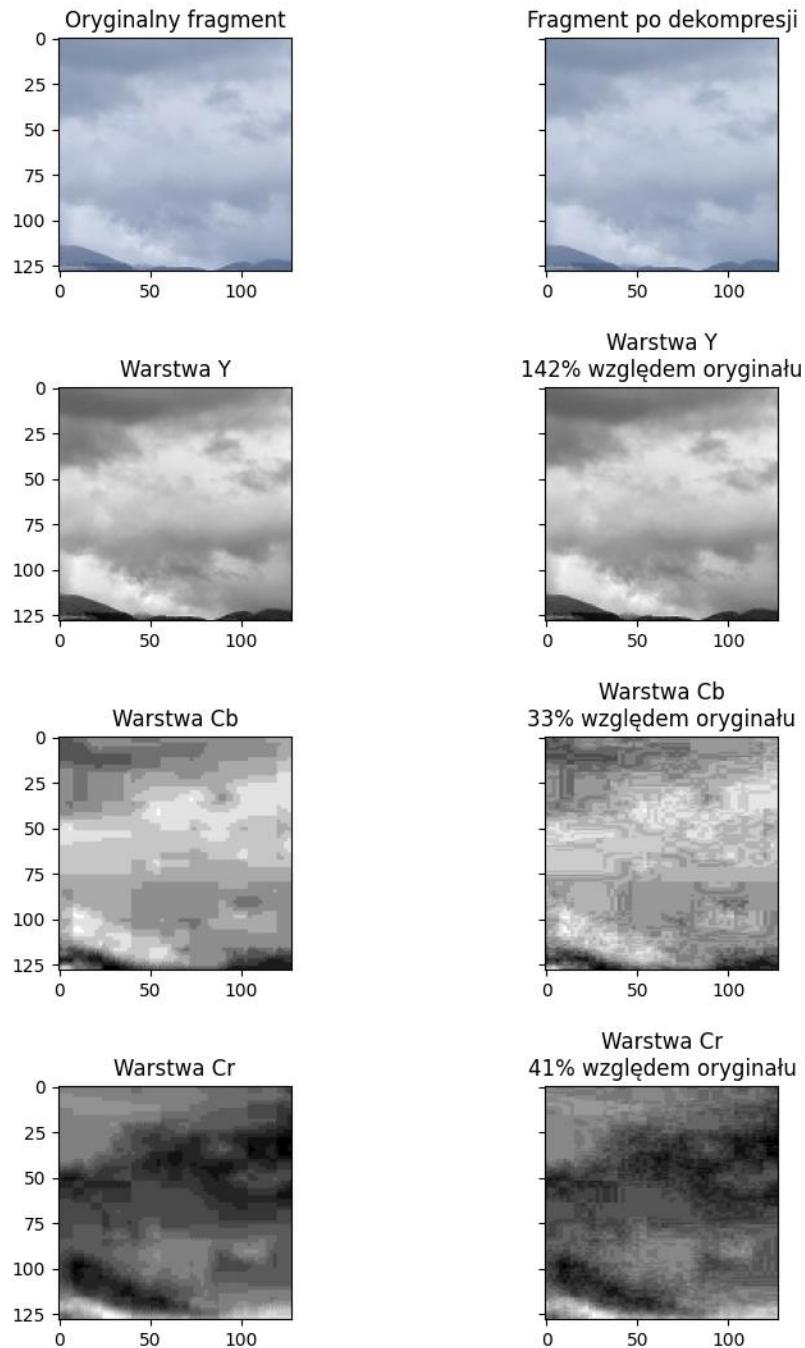
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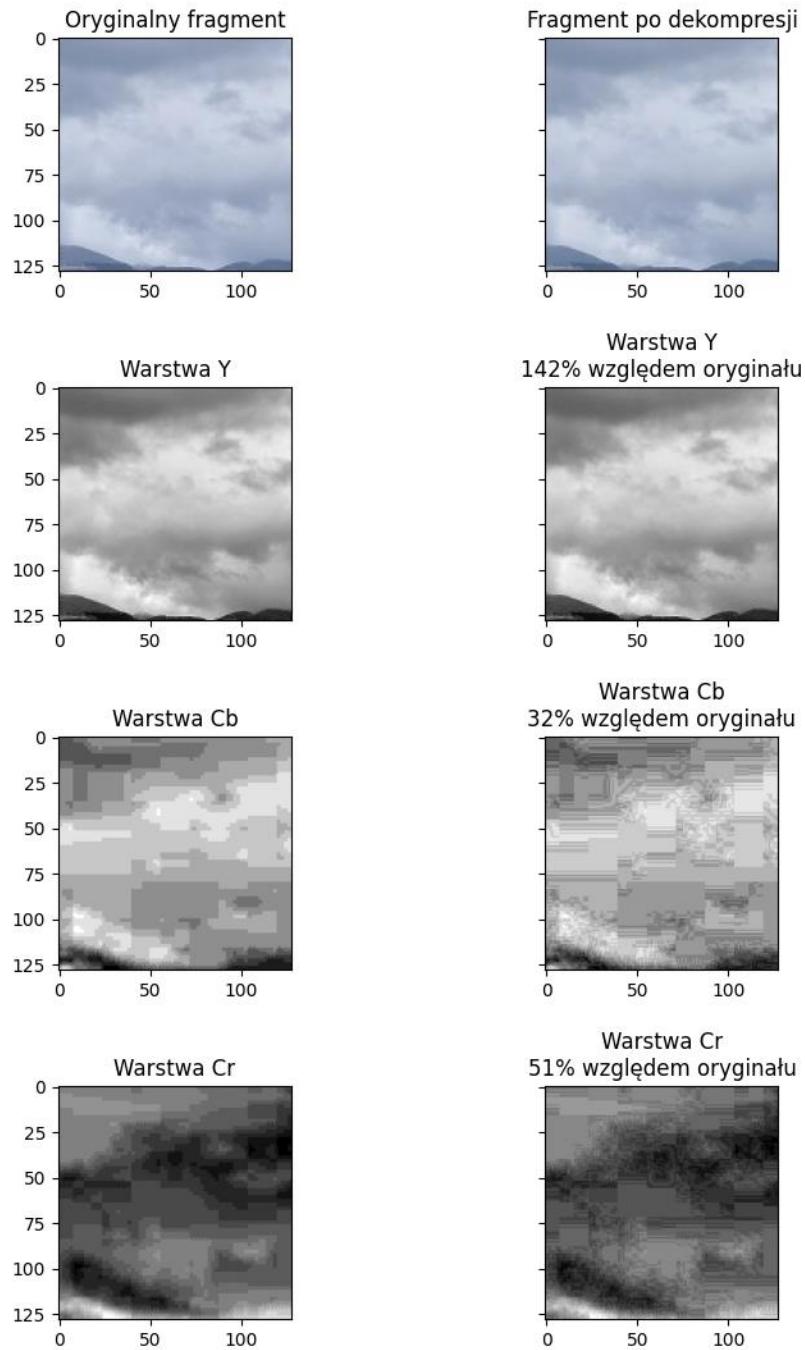
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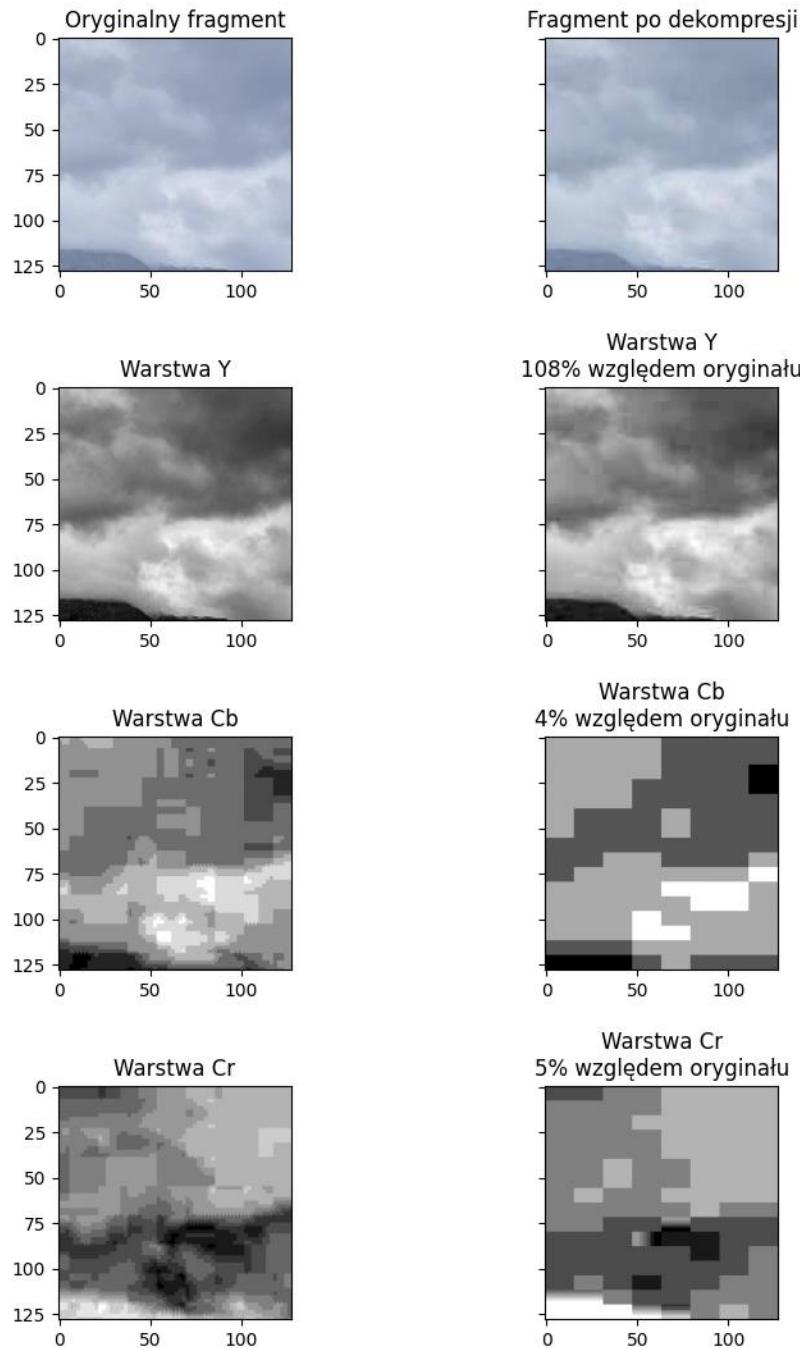
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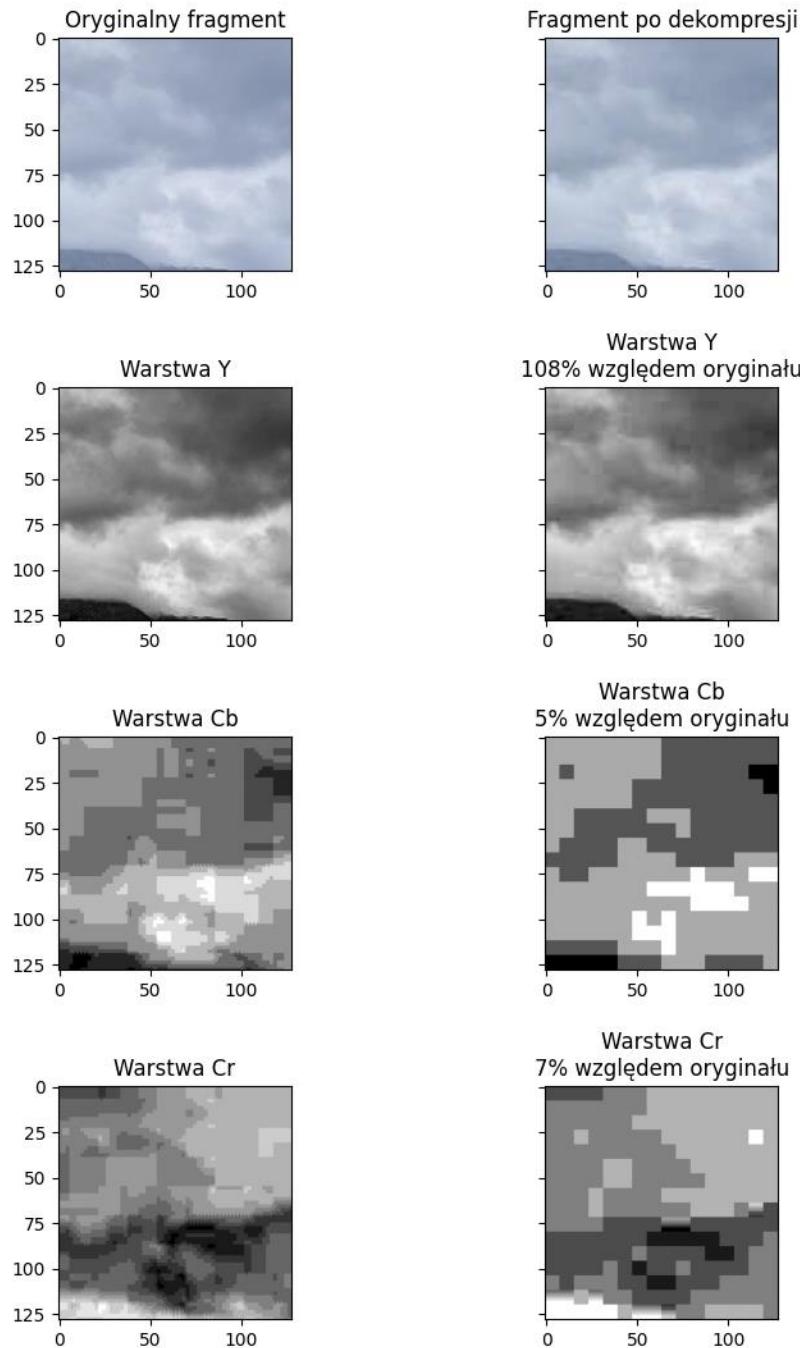
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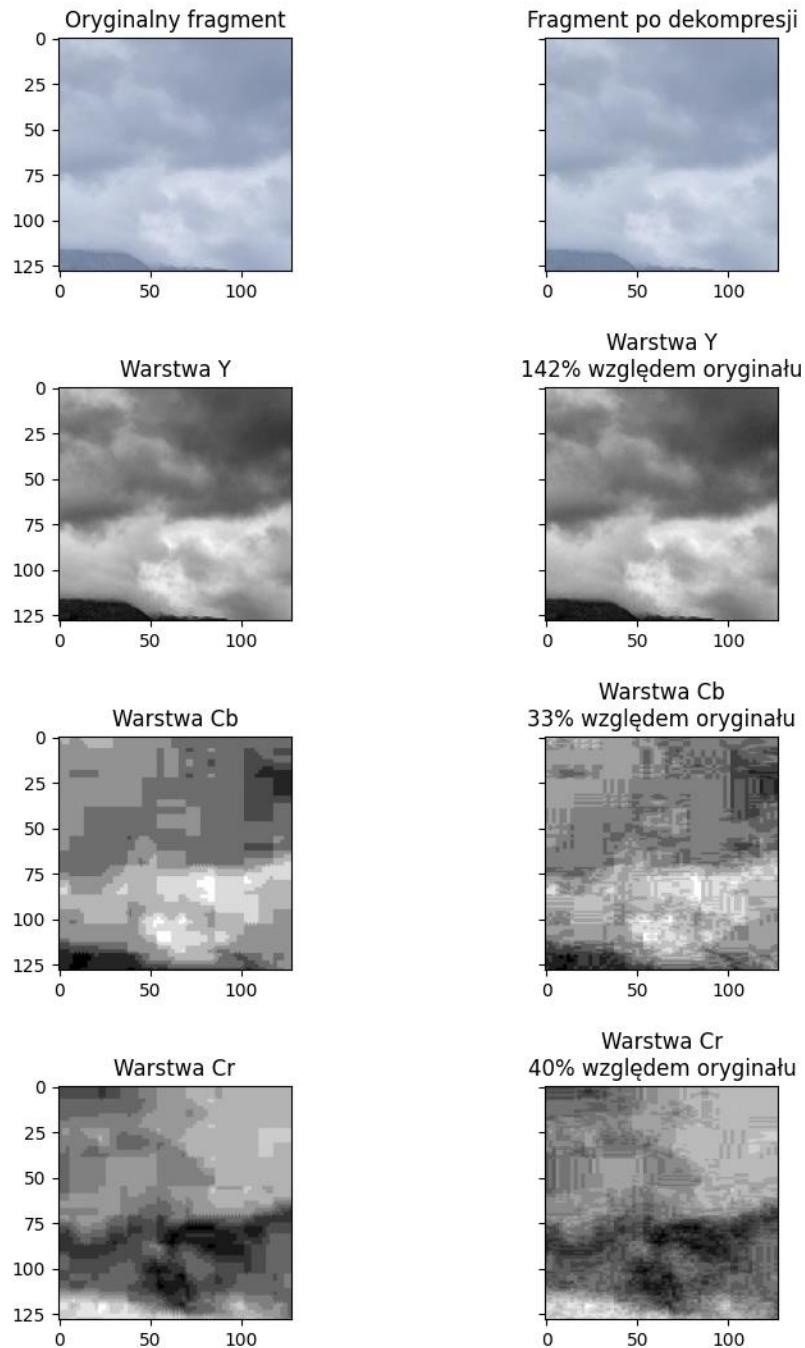
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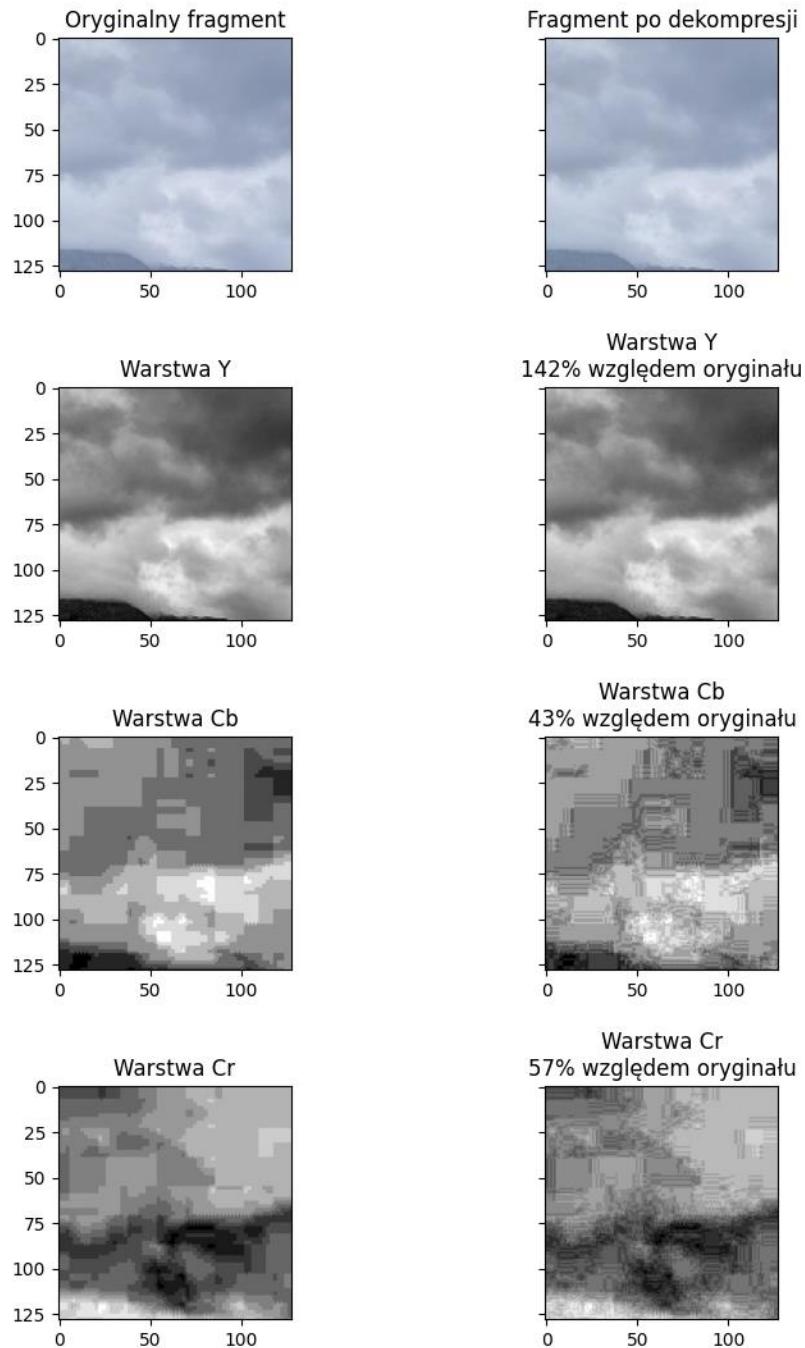
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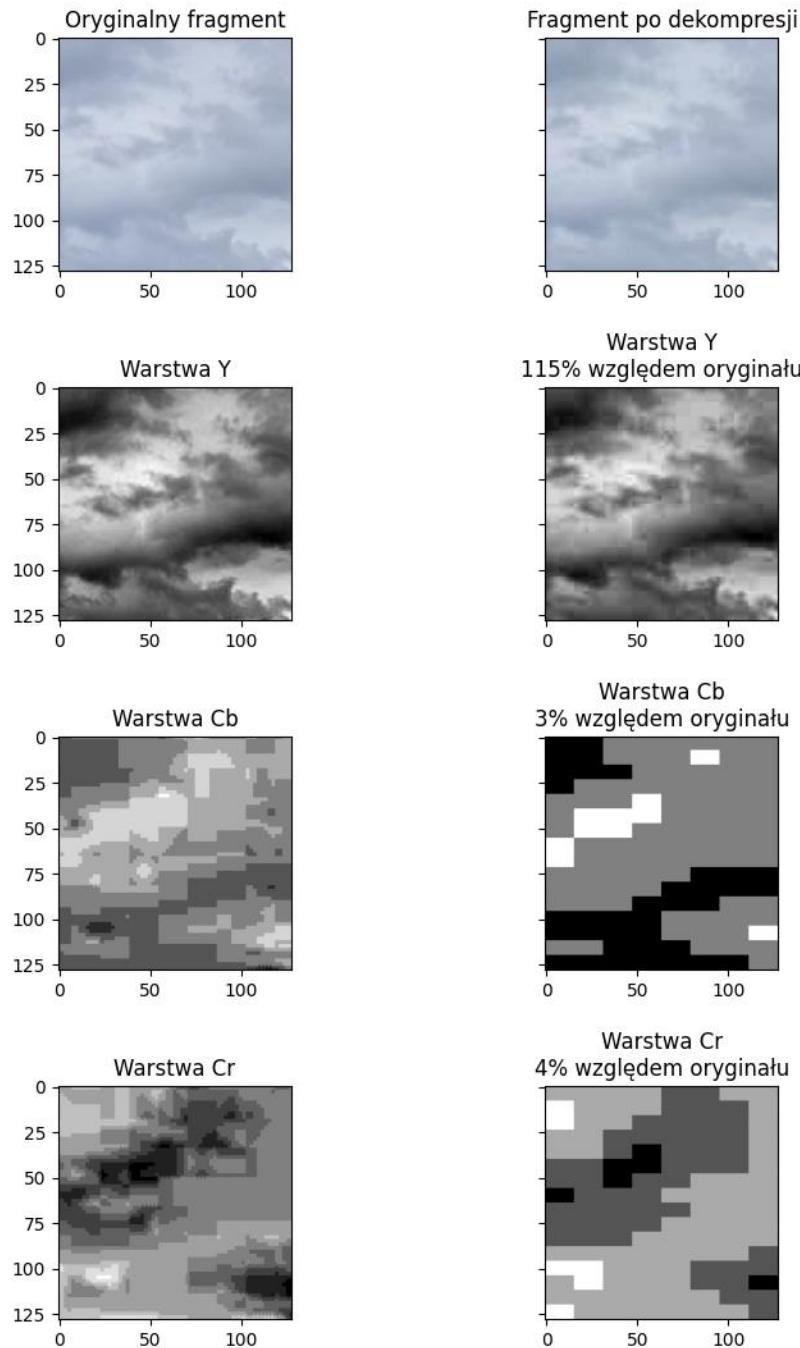
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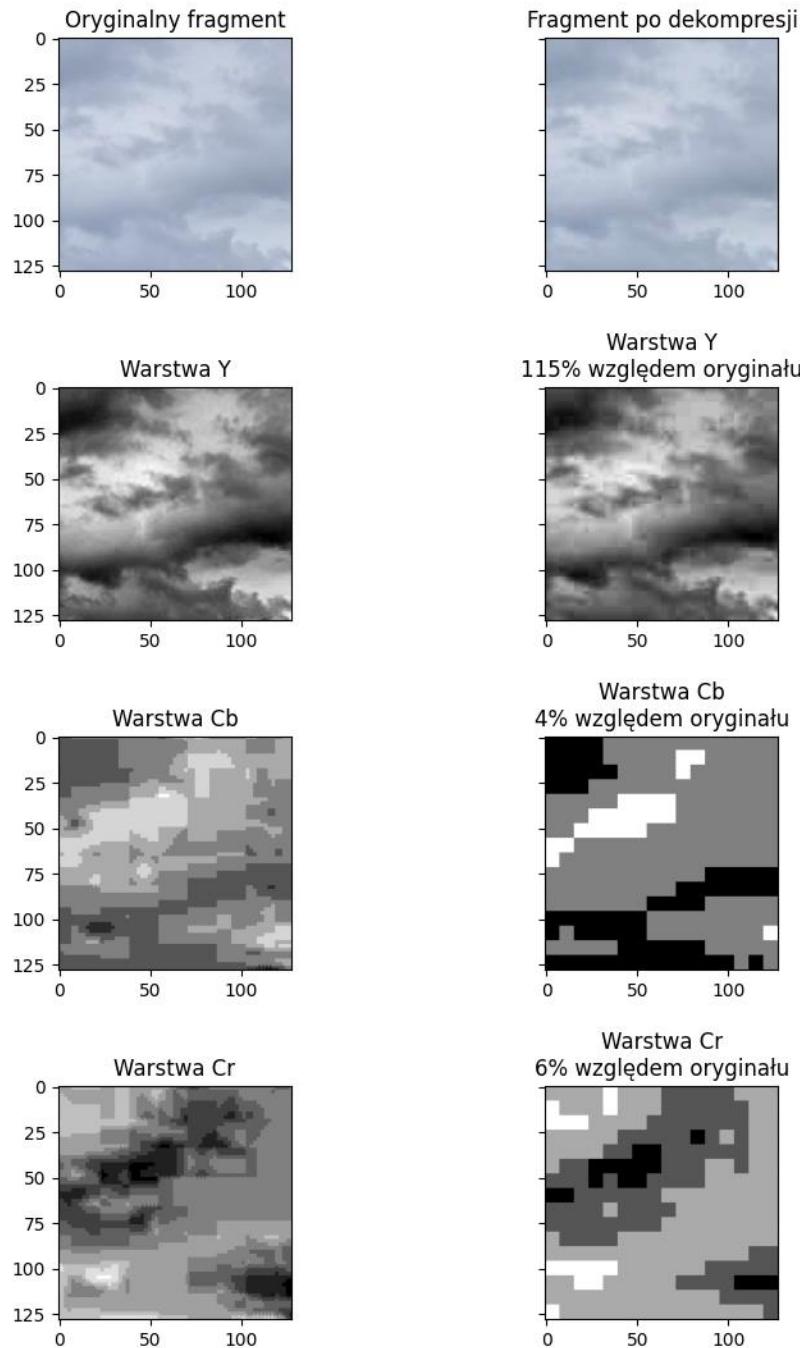
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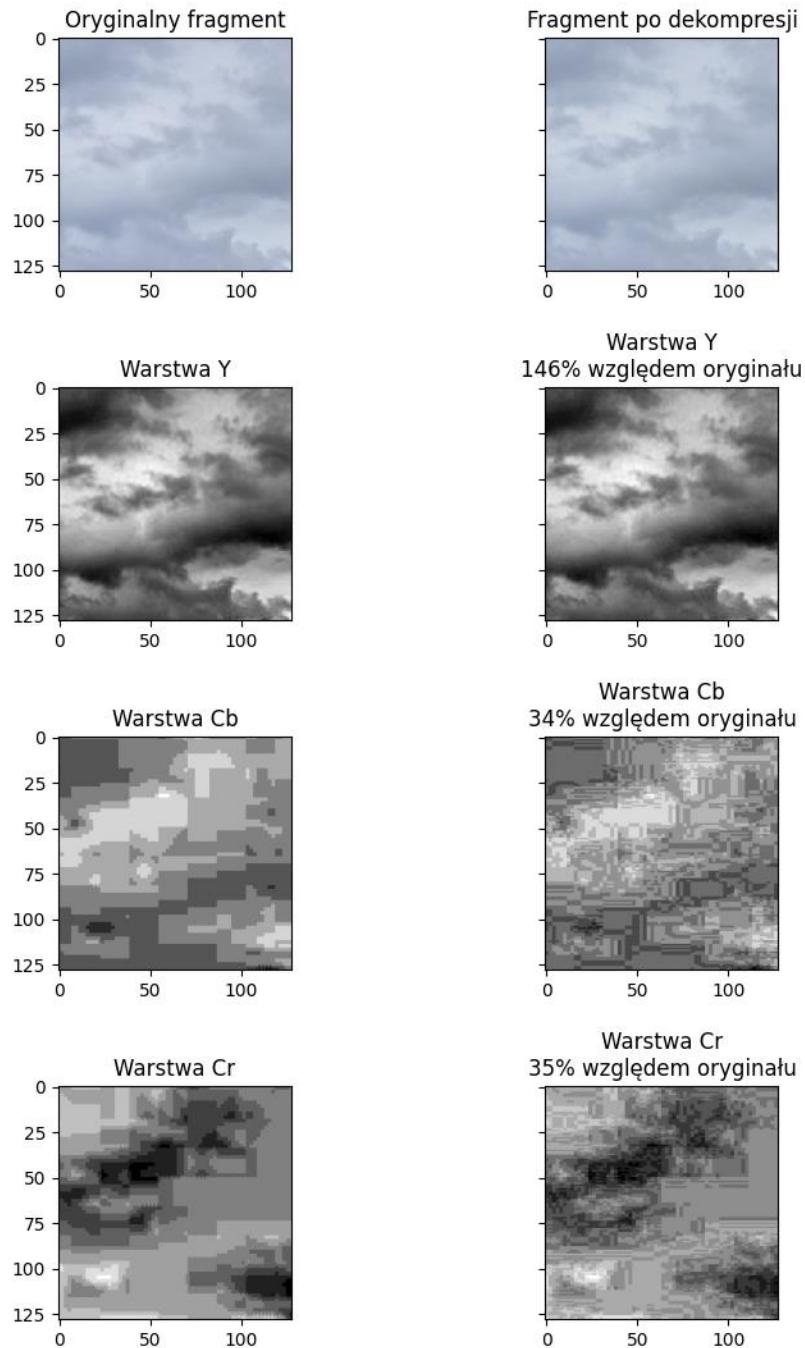
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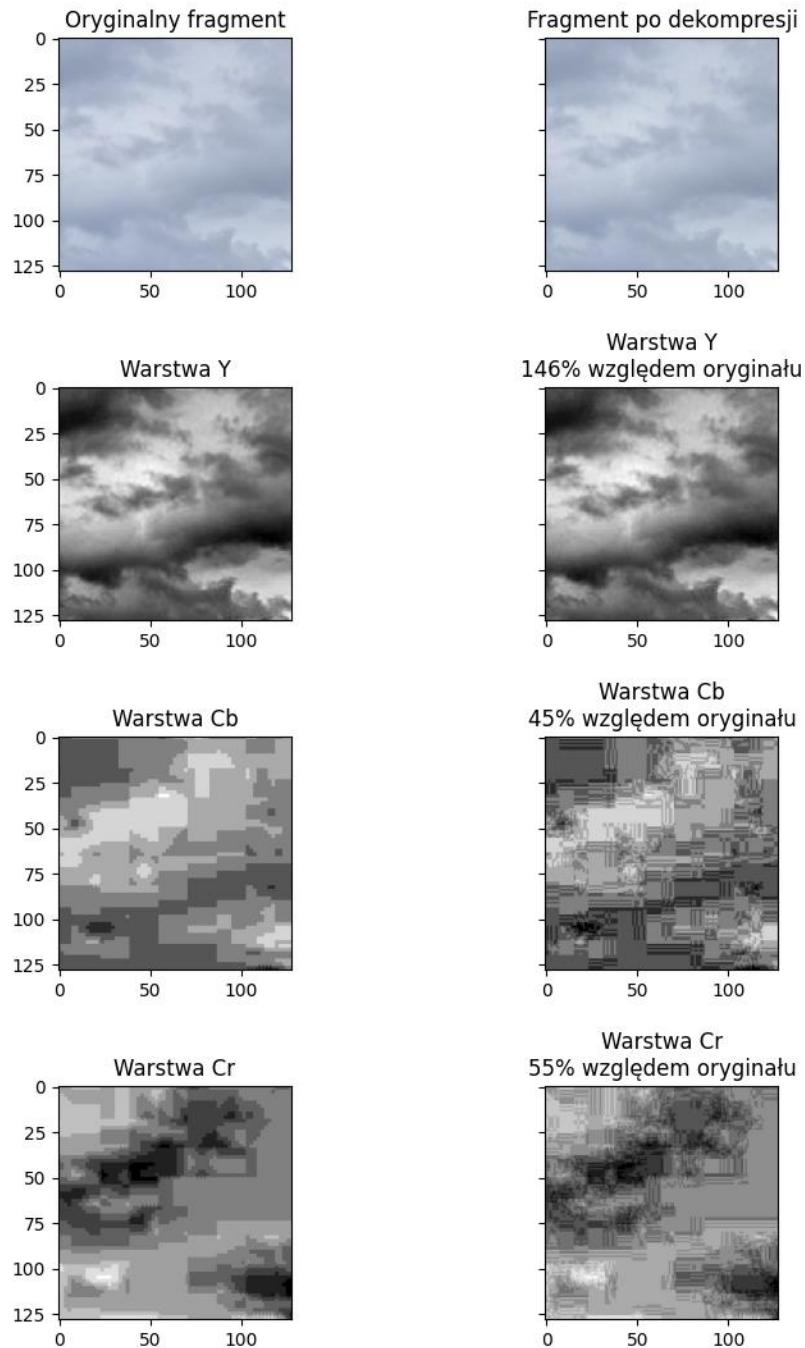
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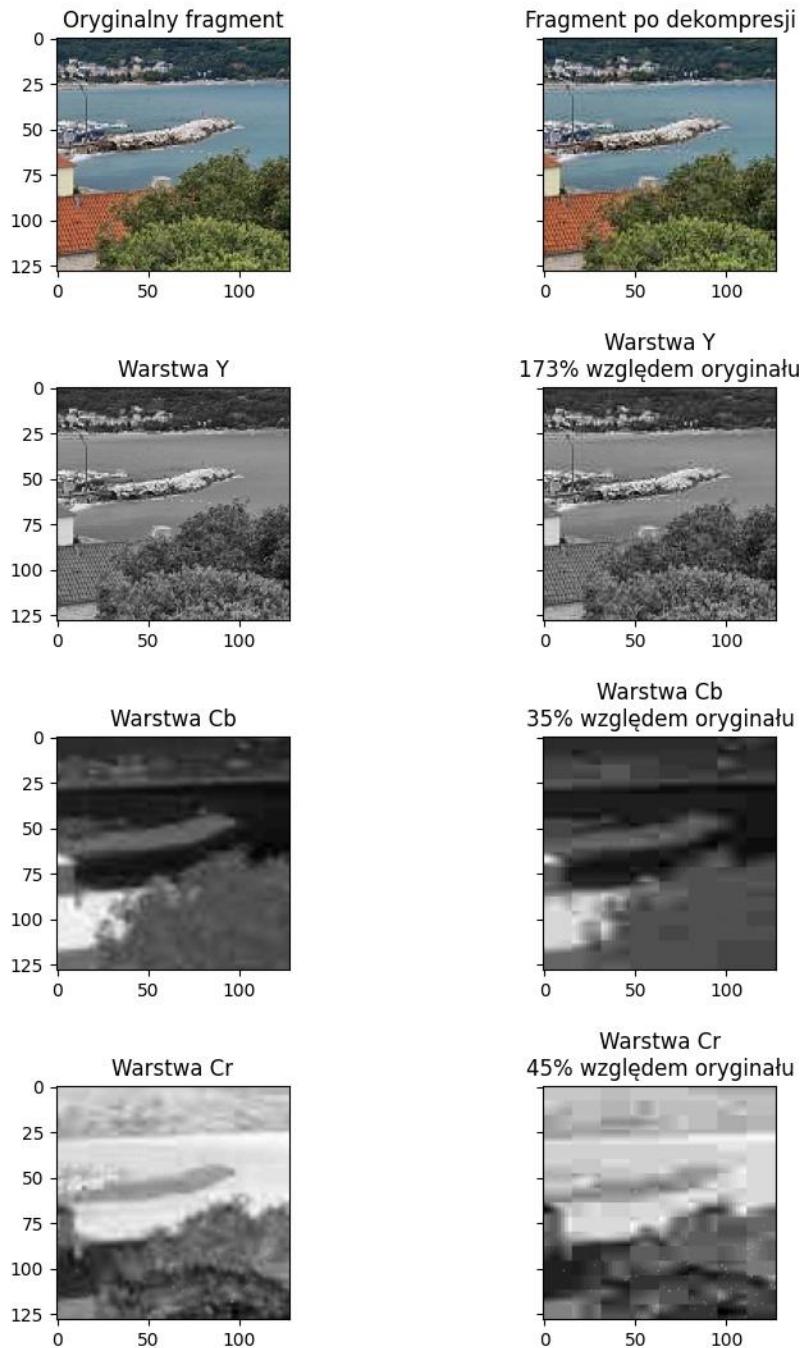
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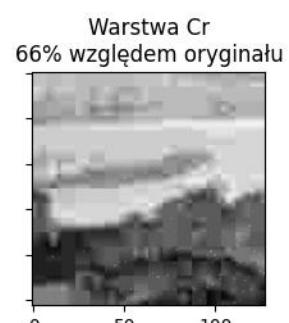
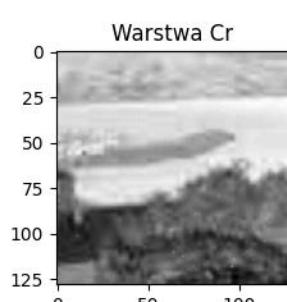
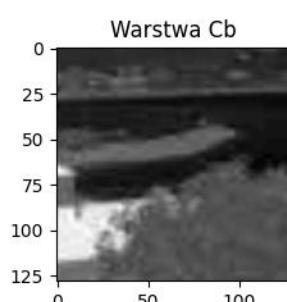
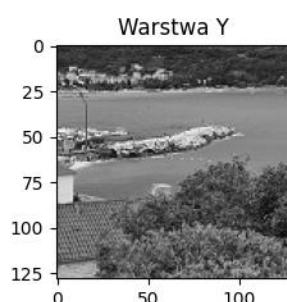
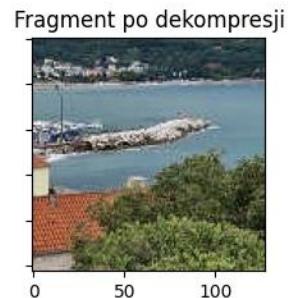
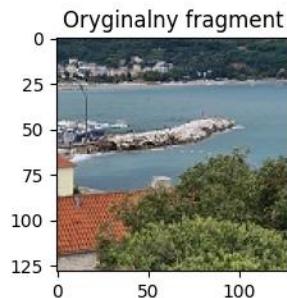
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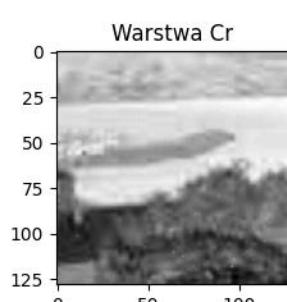
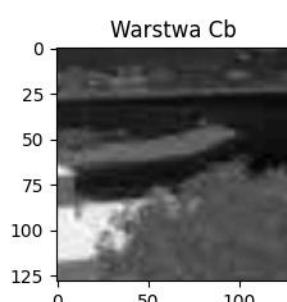
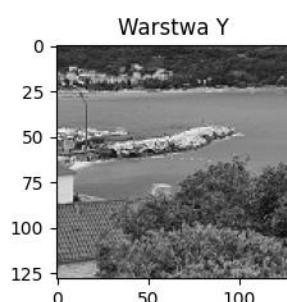
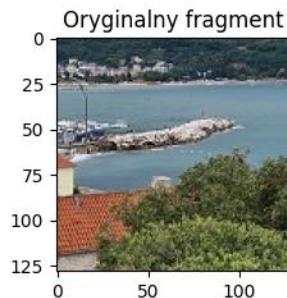
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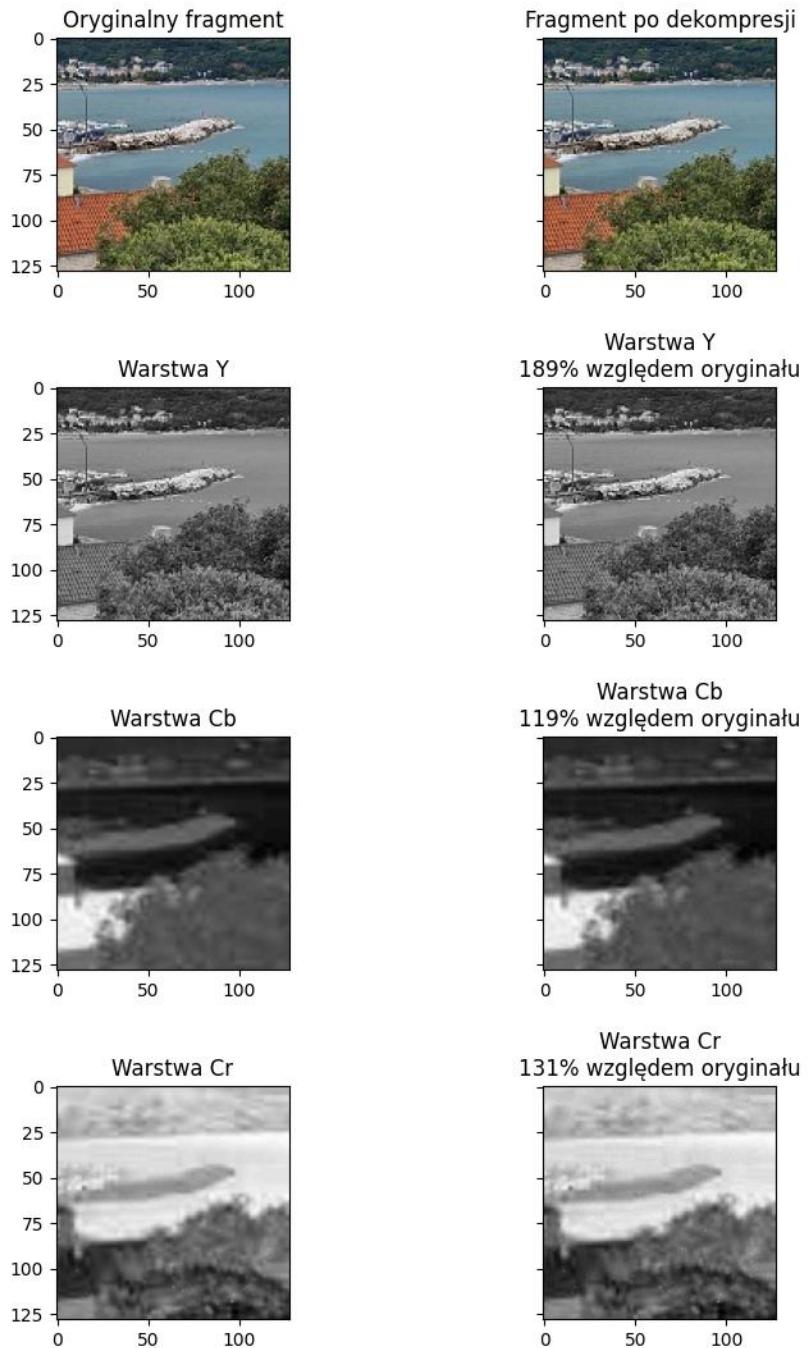
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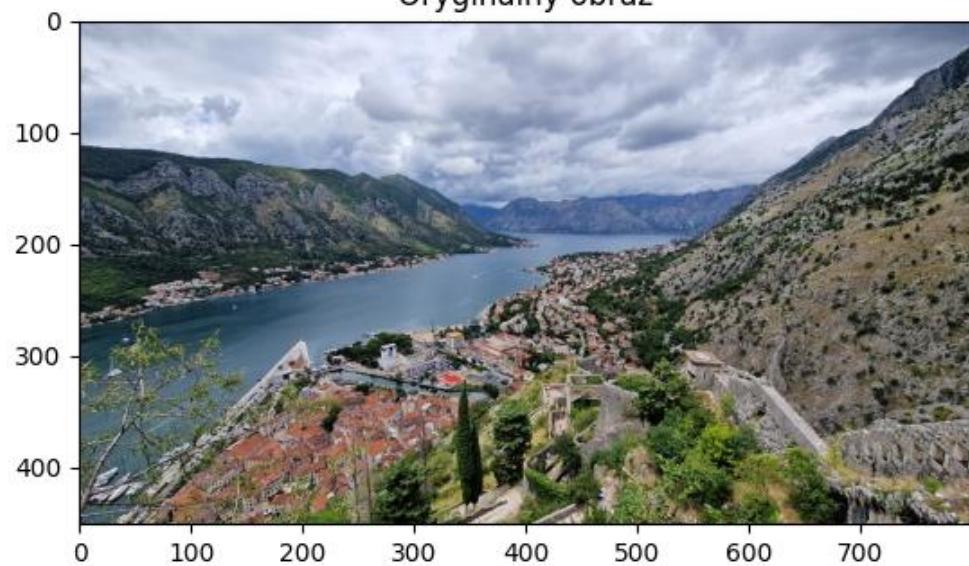
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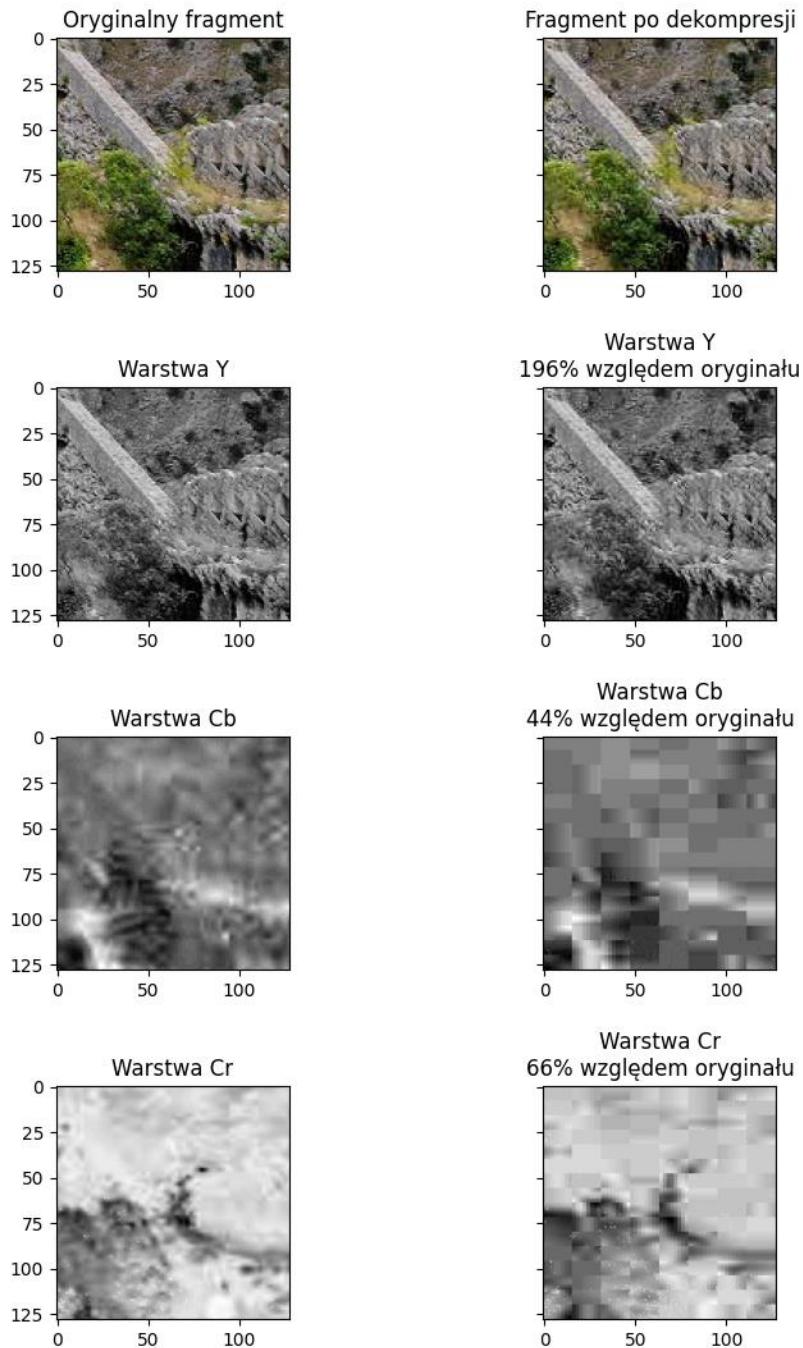
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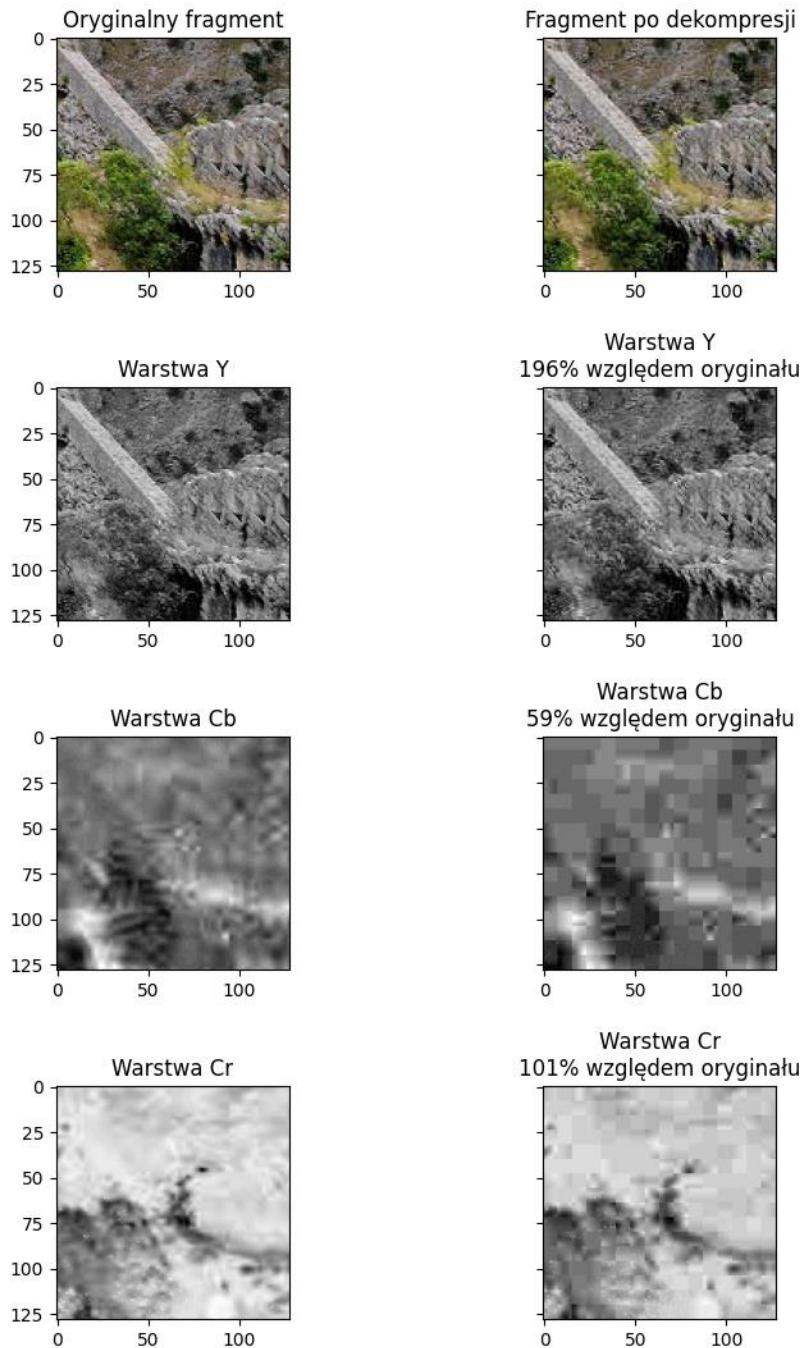
Oryginalny obraz



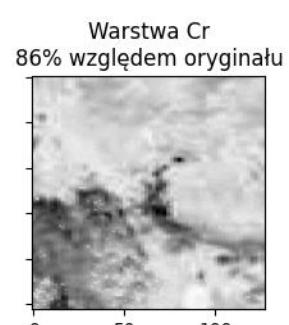
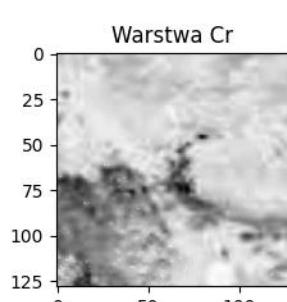
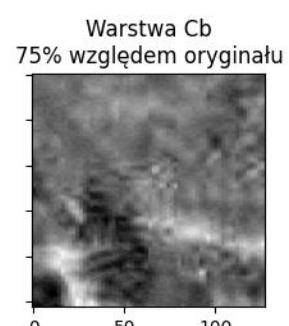
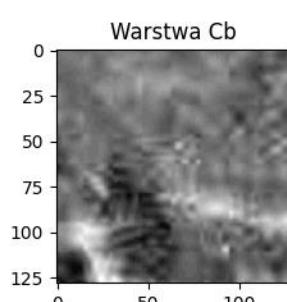
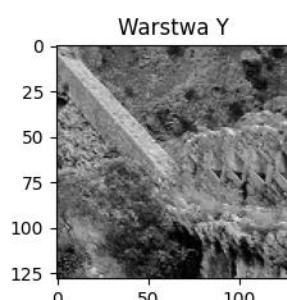
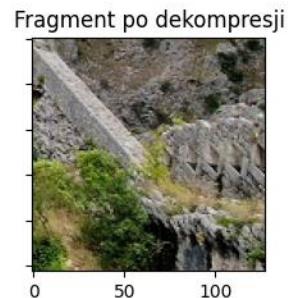
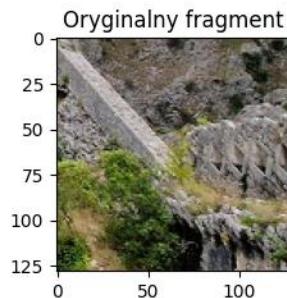
Porównanie oryginalnych warstw z warstwami po dekompresji
Ratio: 4:2:2, QY: True, QC: True



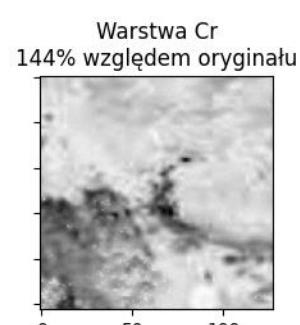
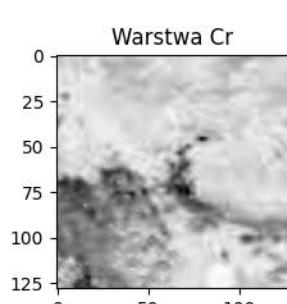
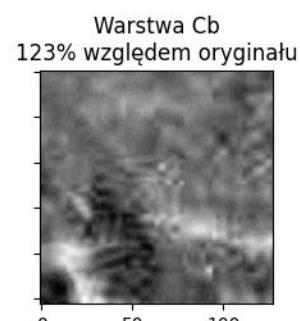
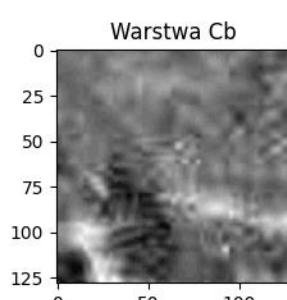
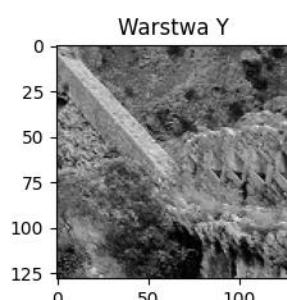
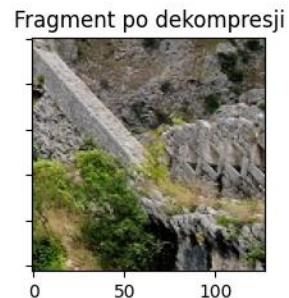
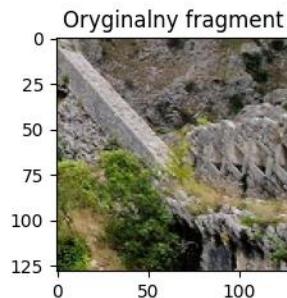
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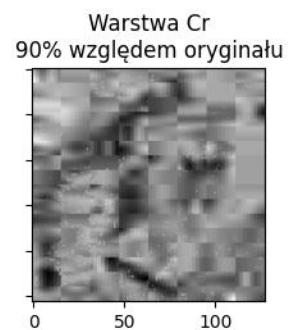
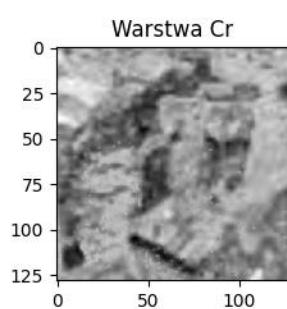
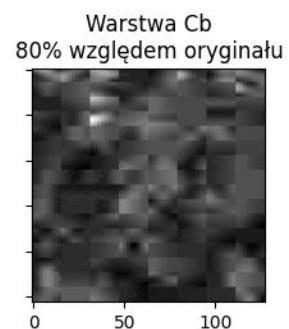
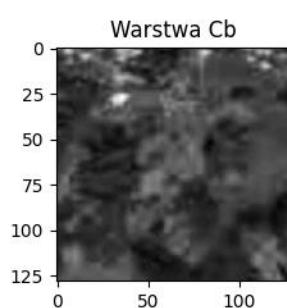
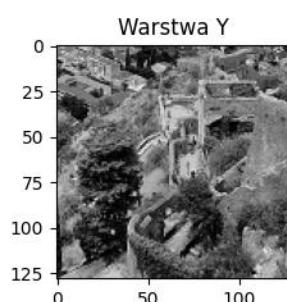
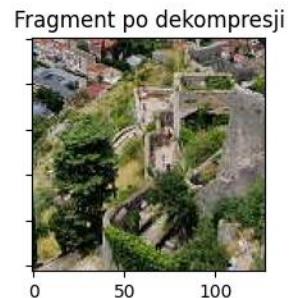
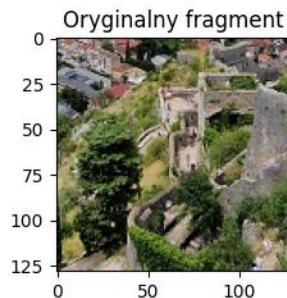
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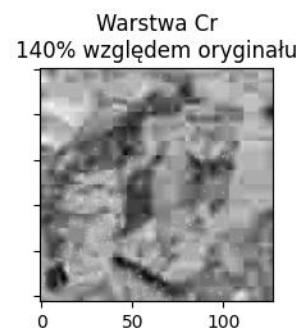
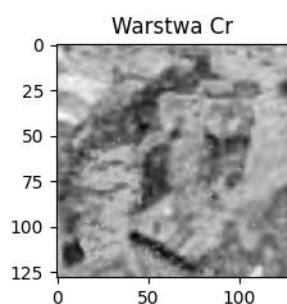
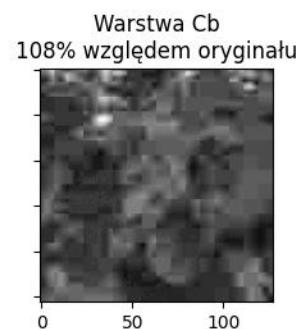
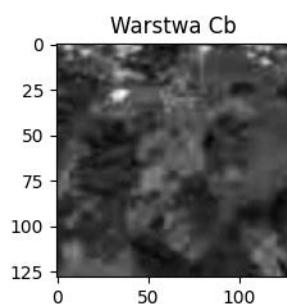
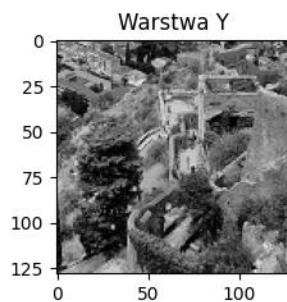
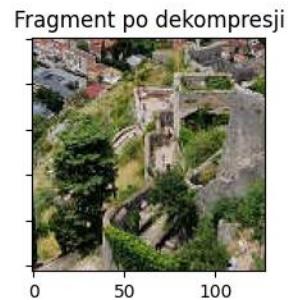
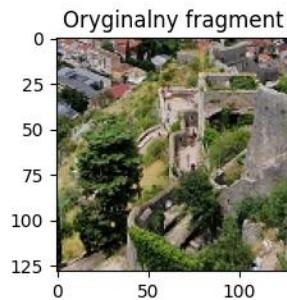
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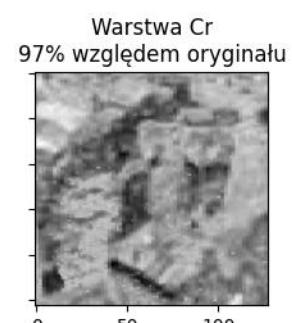
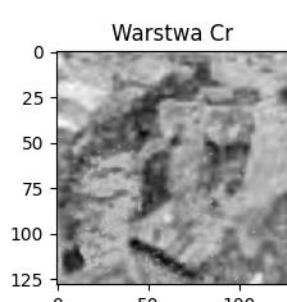
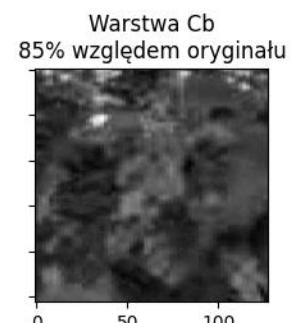
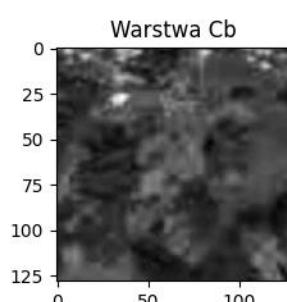
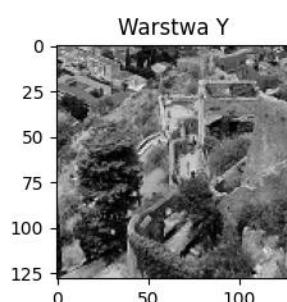
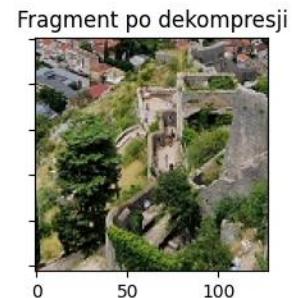
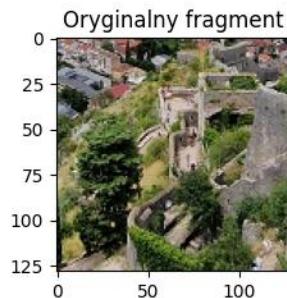
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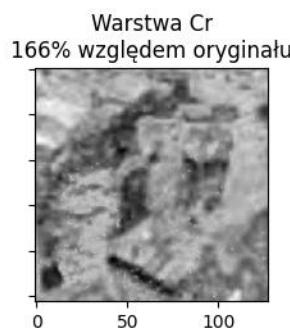
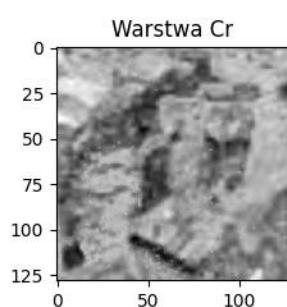
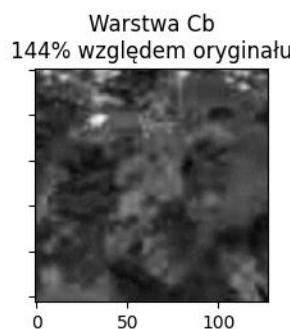
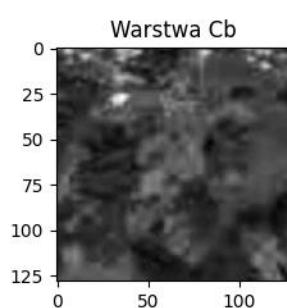
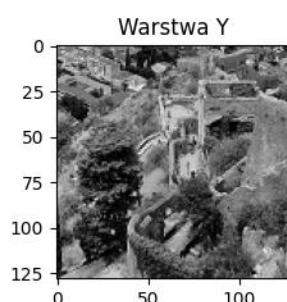
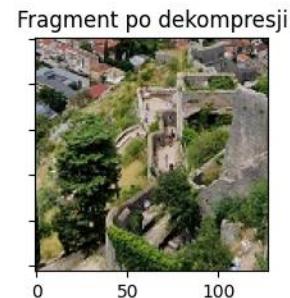
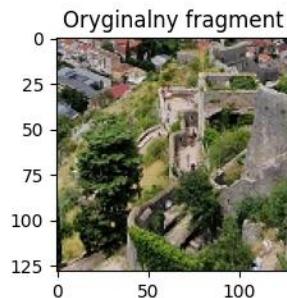
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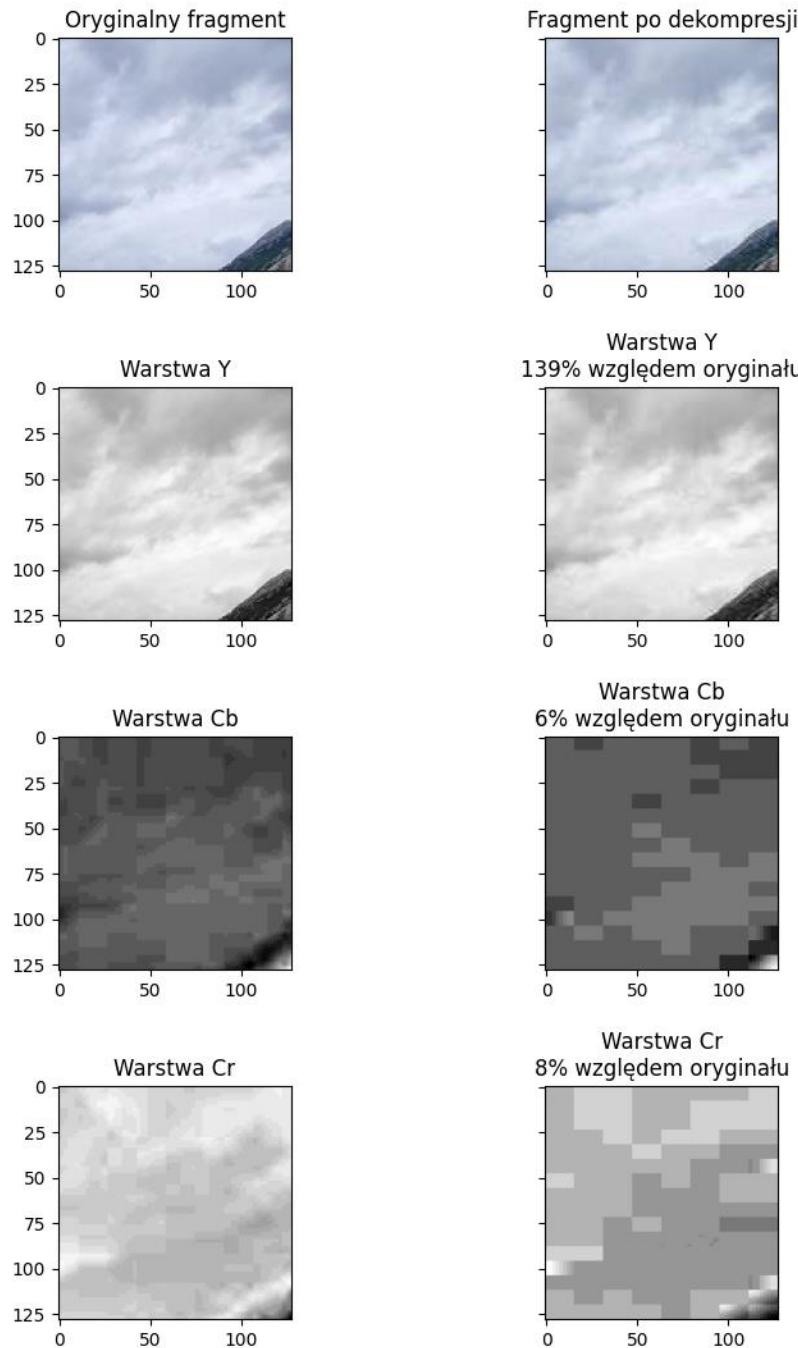
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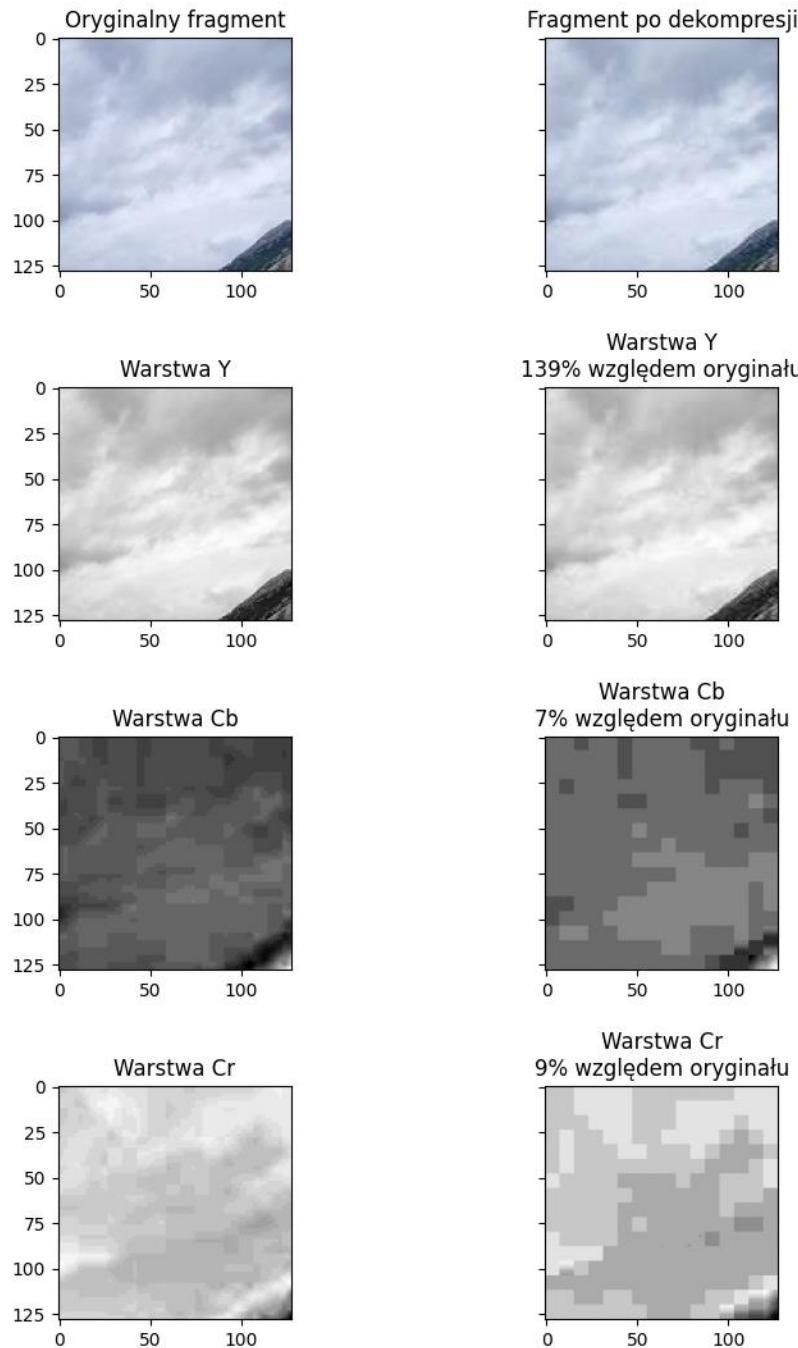
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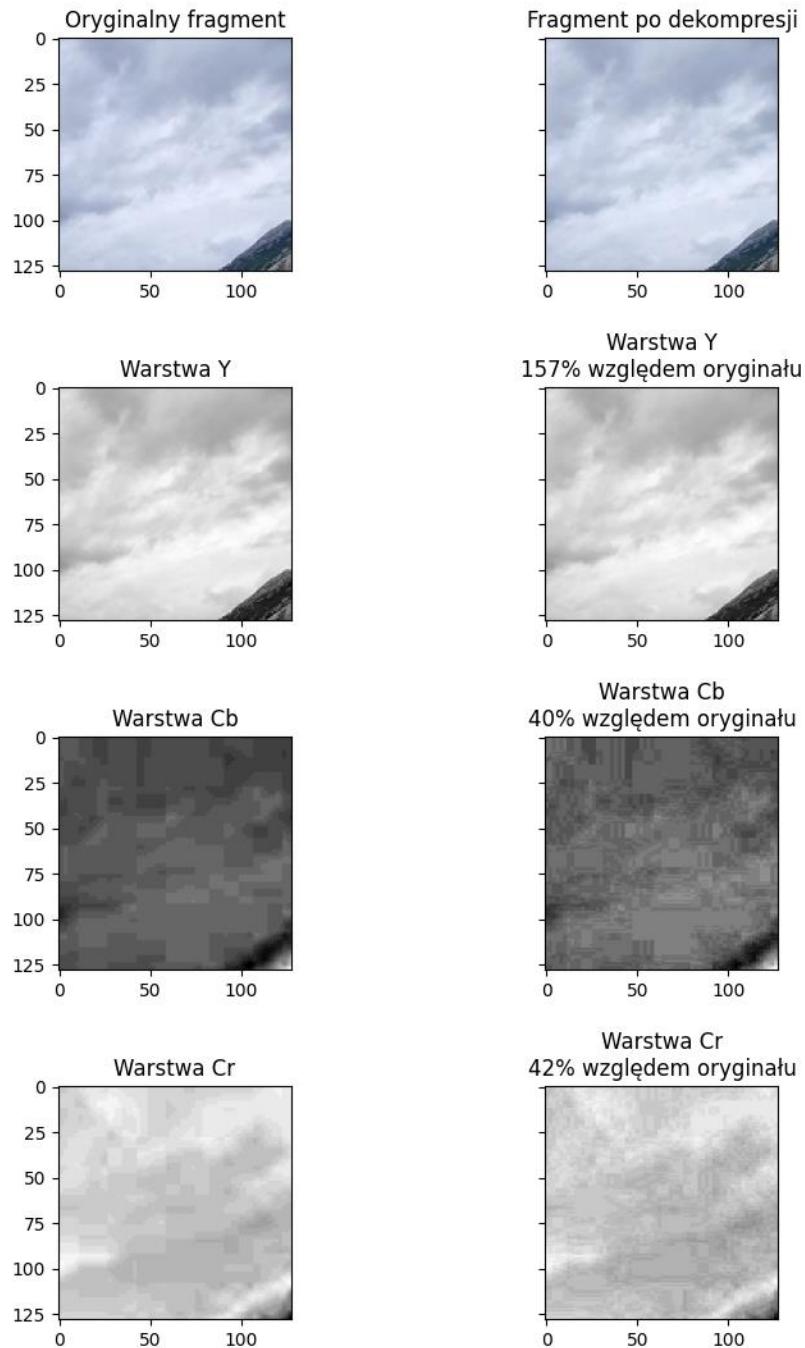
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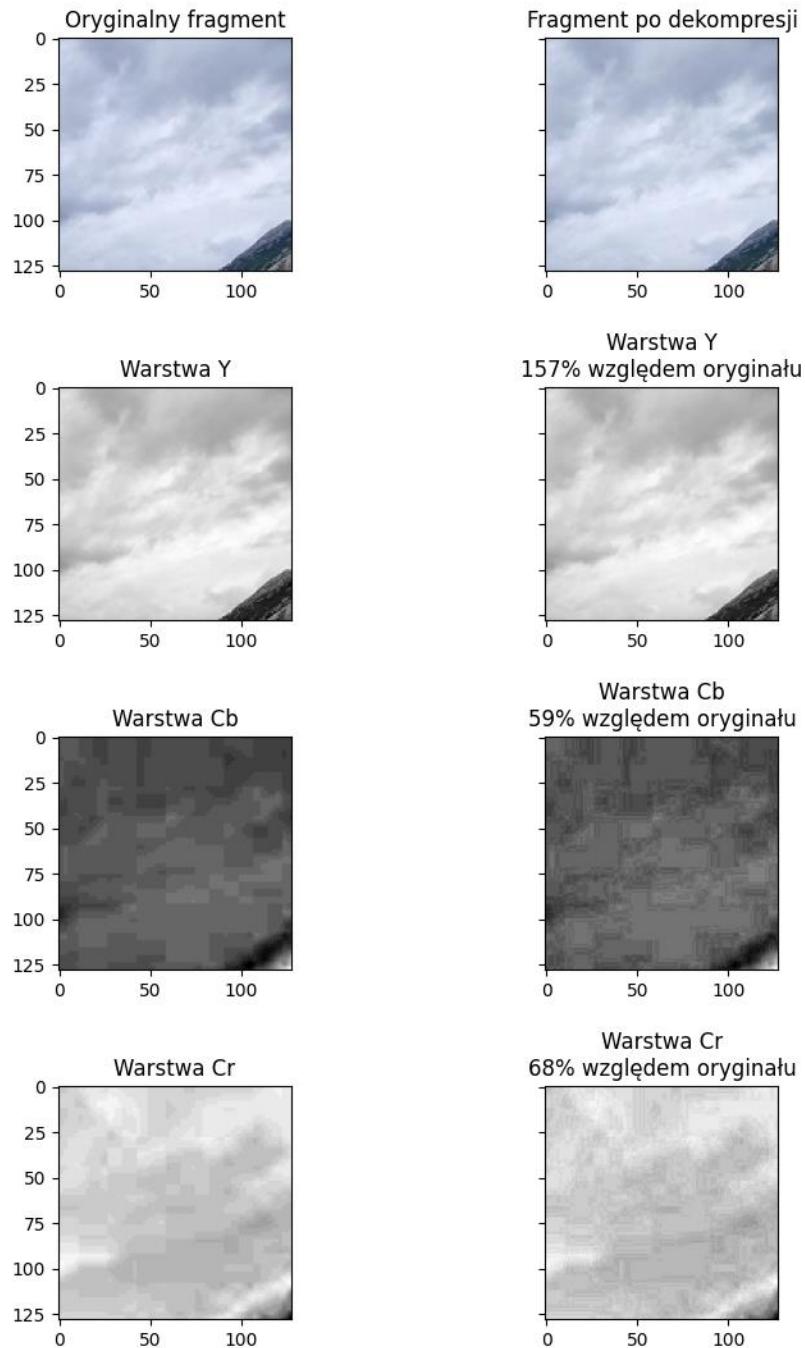
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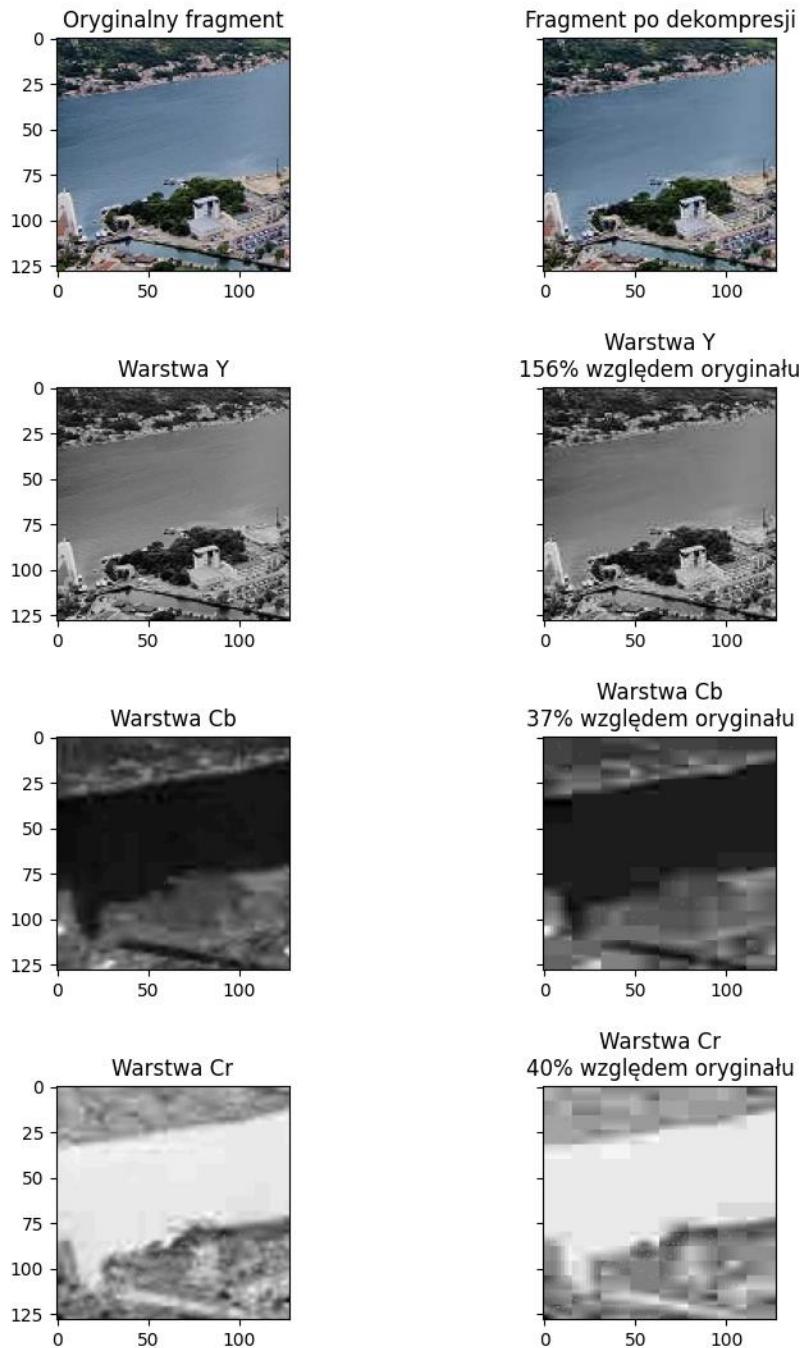
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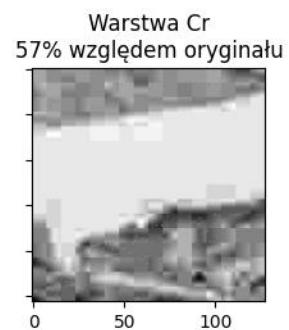
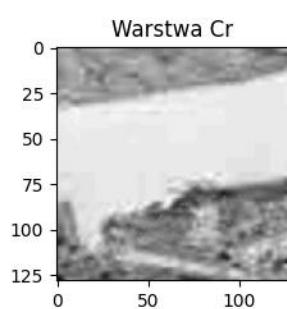
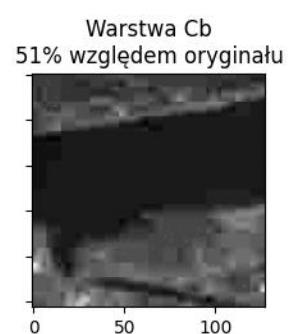
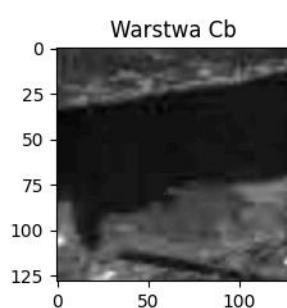
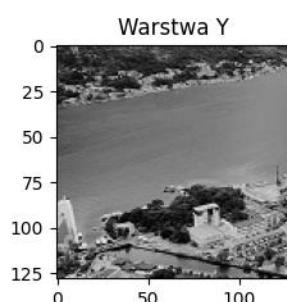
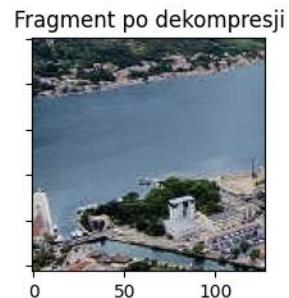
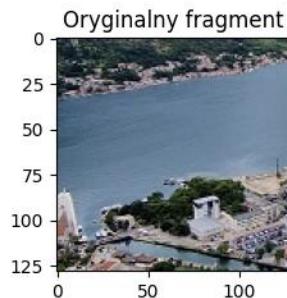
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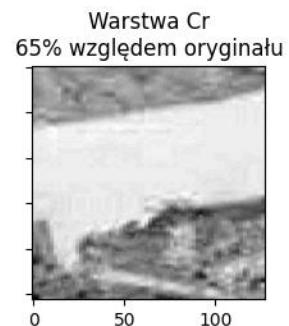
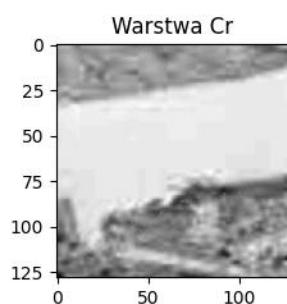
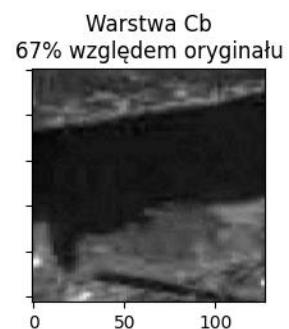
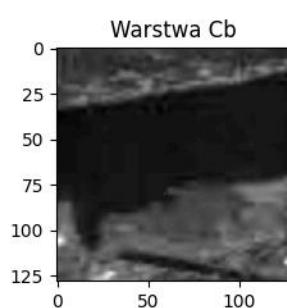
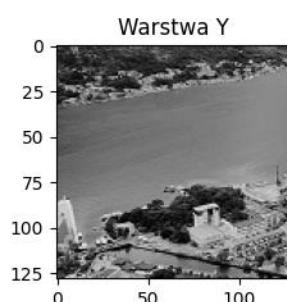
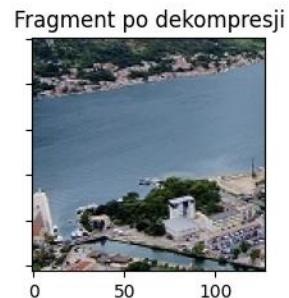
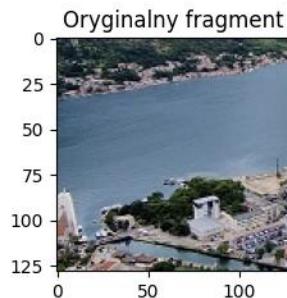
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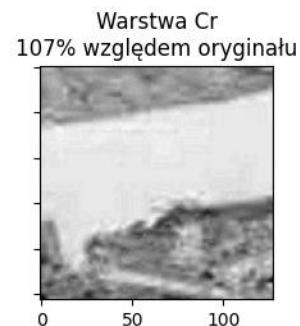
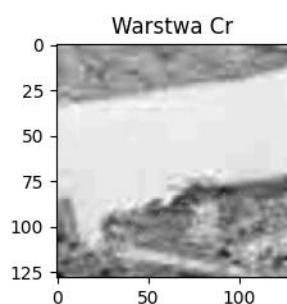
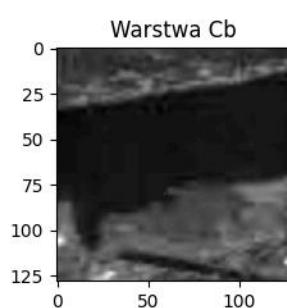
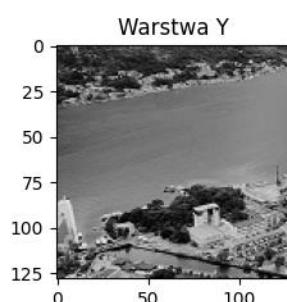
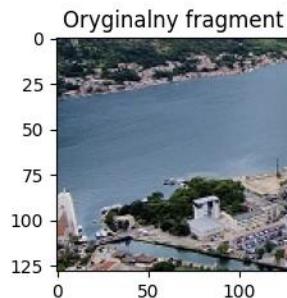
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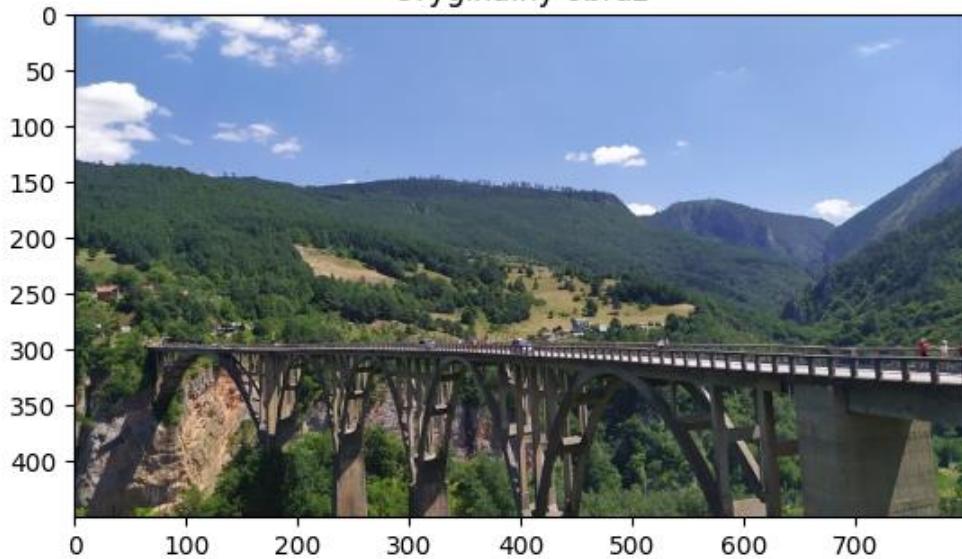
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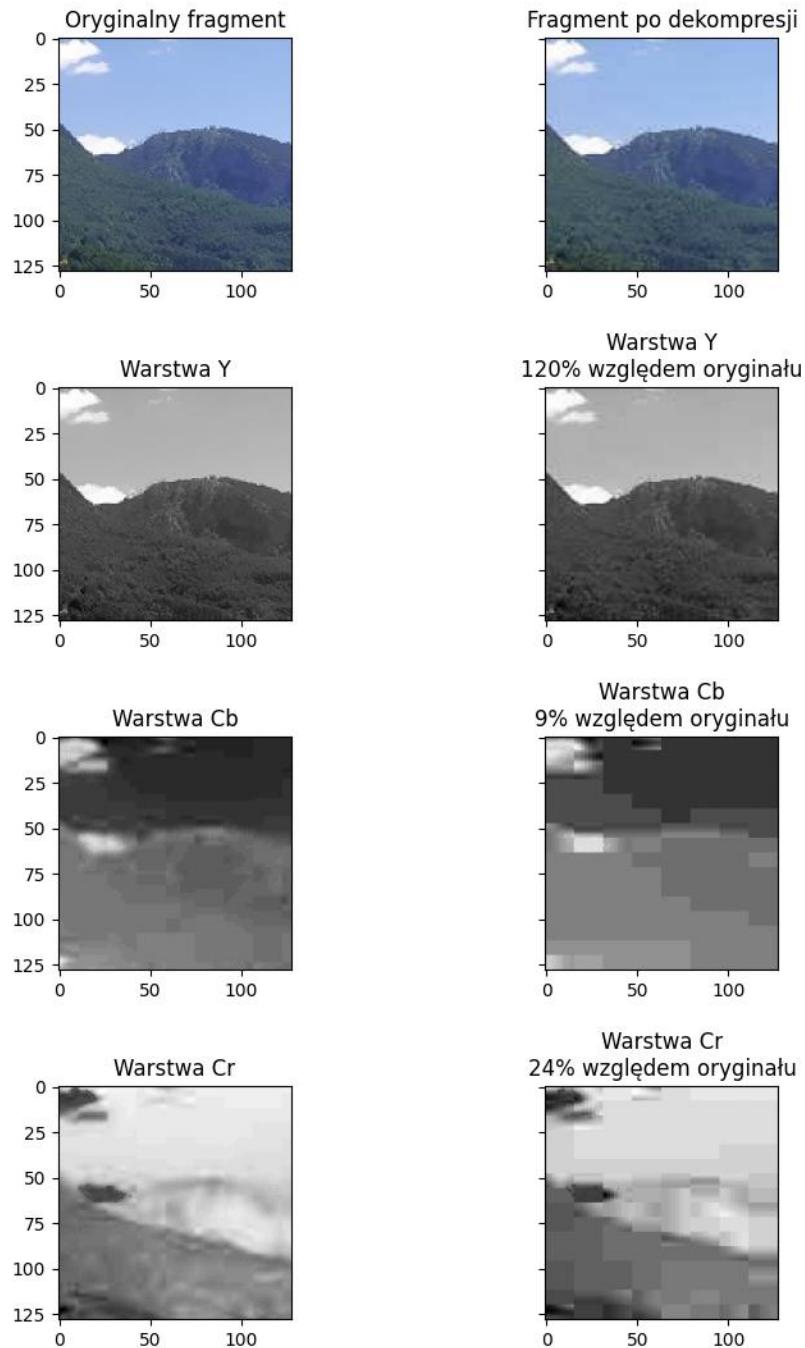
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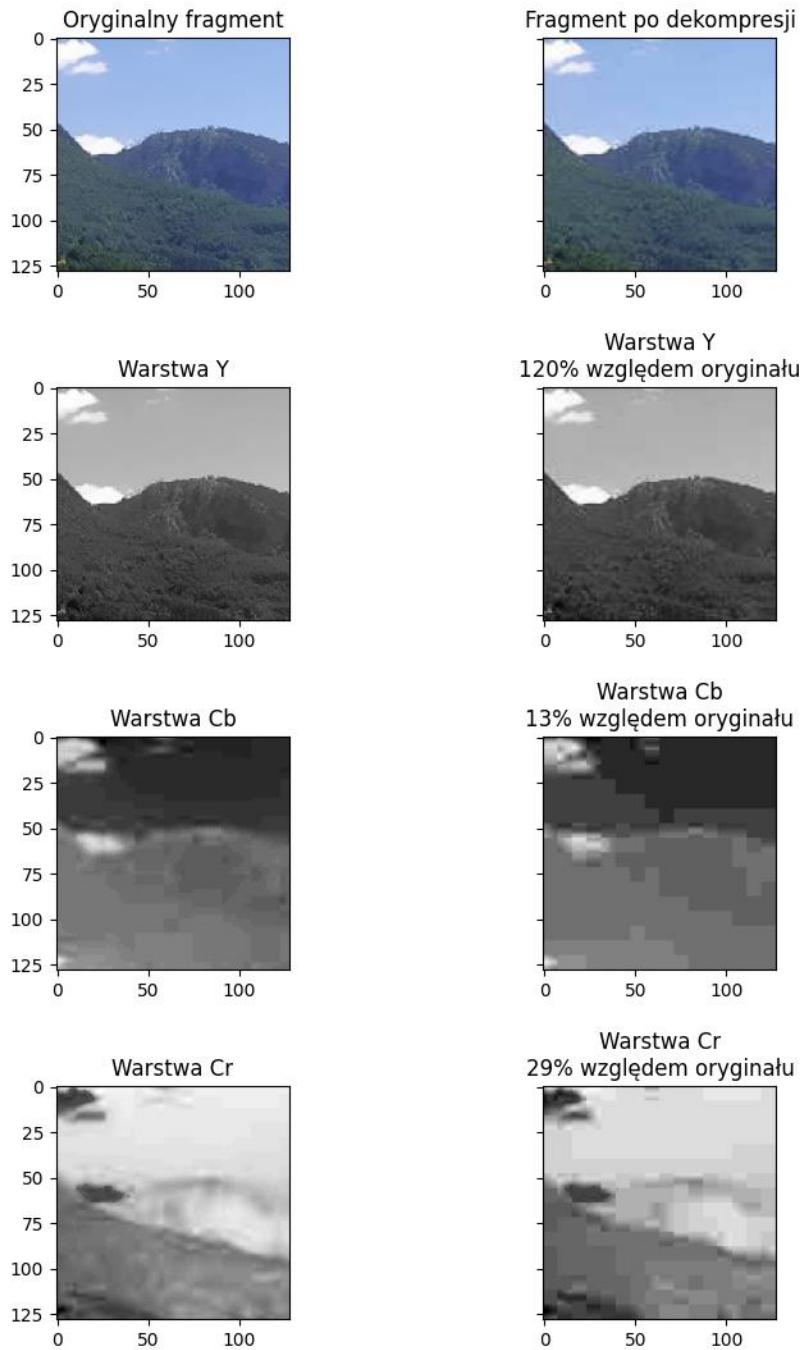
Oryginalny obraz



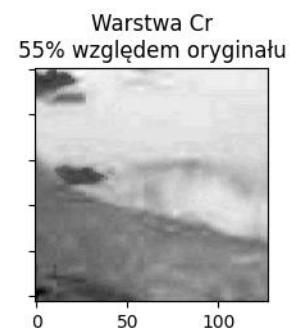
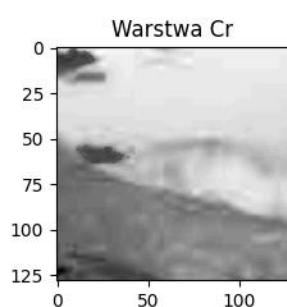
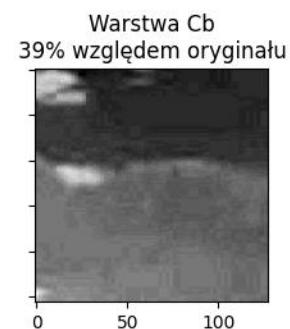
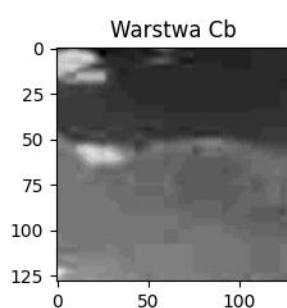
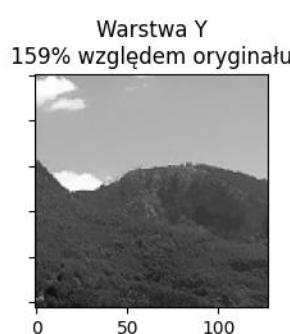
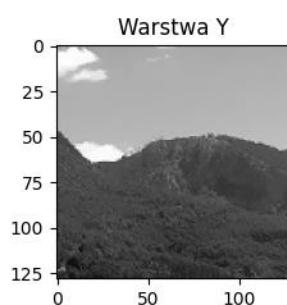
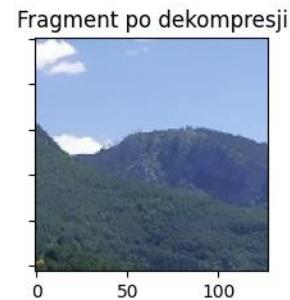
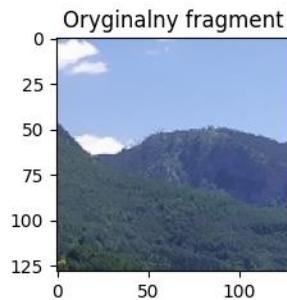
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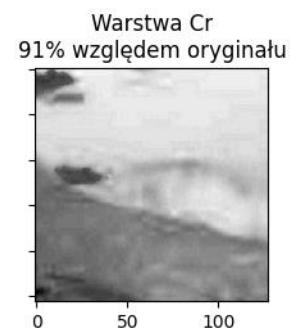
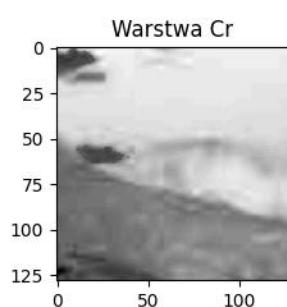
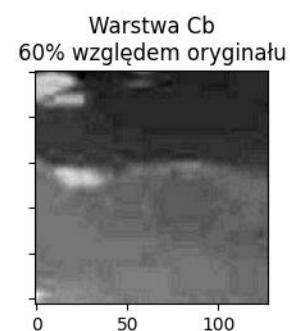
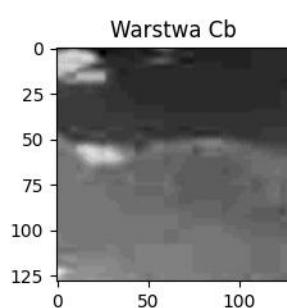
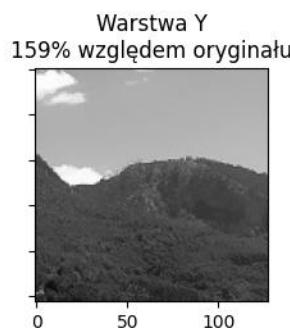
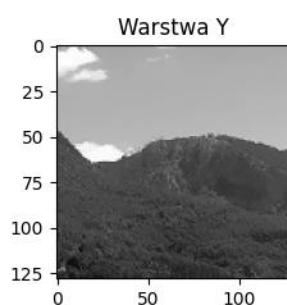
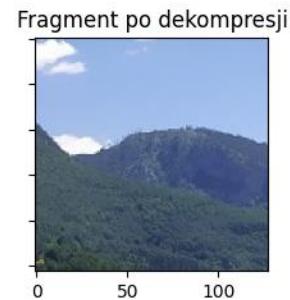
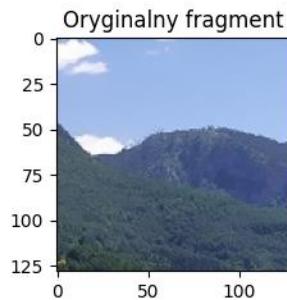
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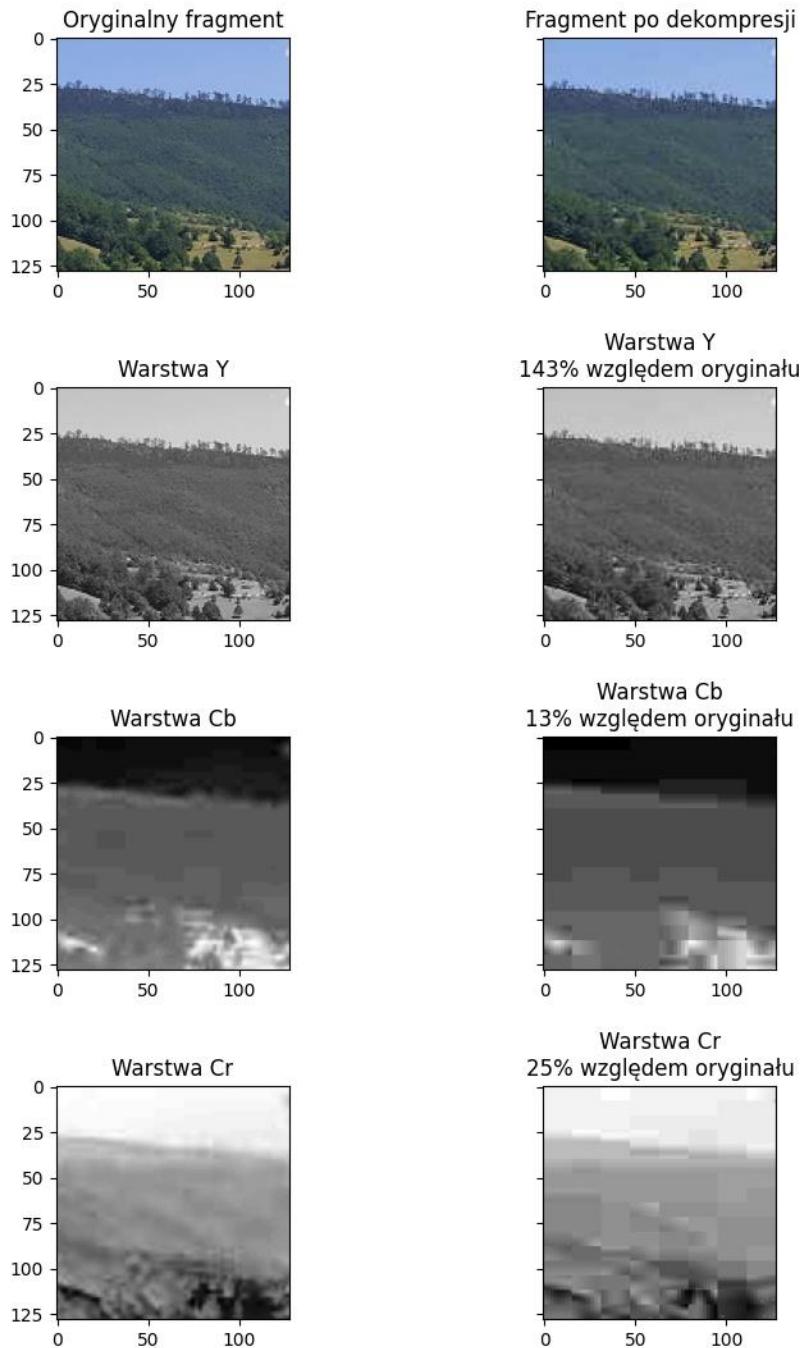
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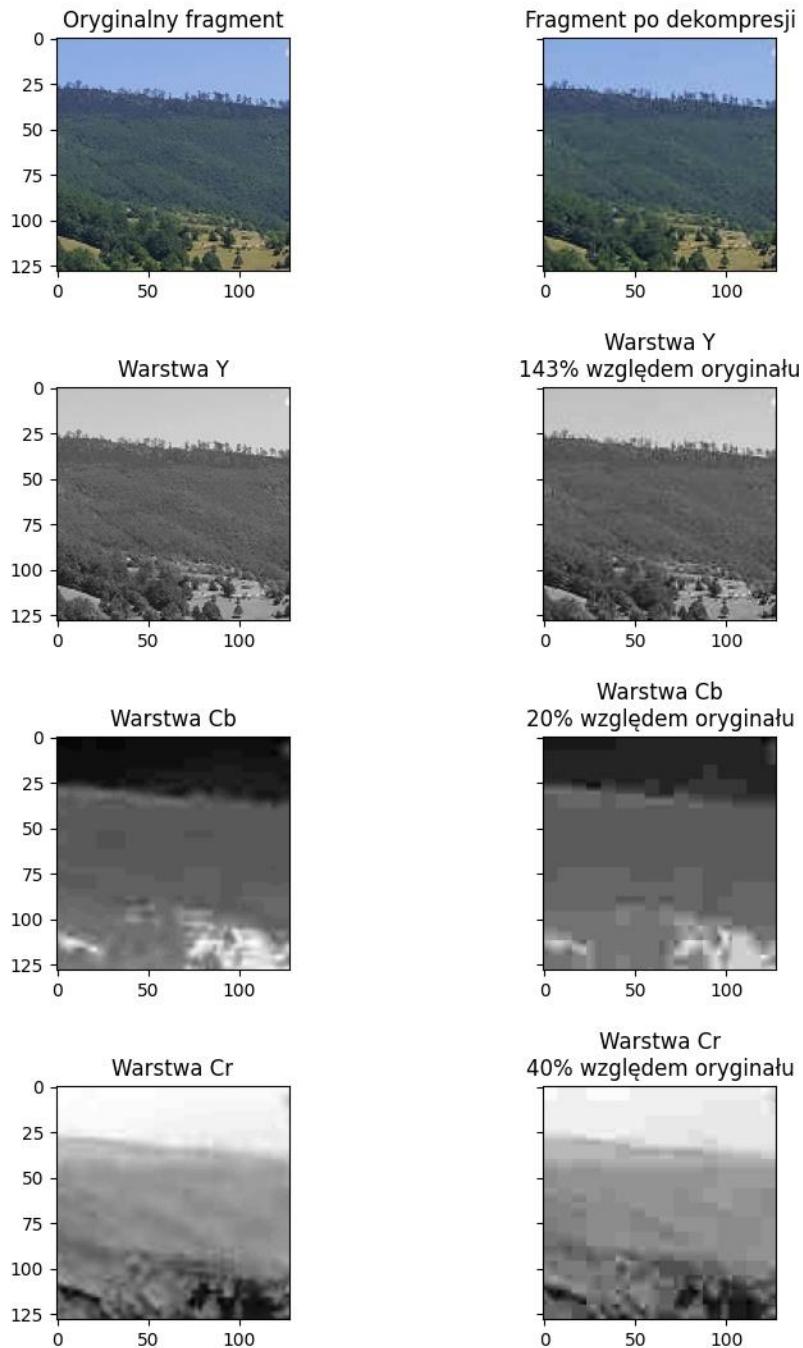
Porównanie oryginalnych warstw z warstwami po dekompresji
Ratio: 4:4:4, QY: False, QC: False



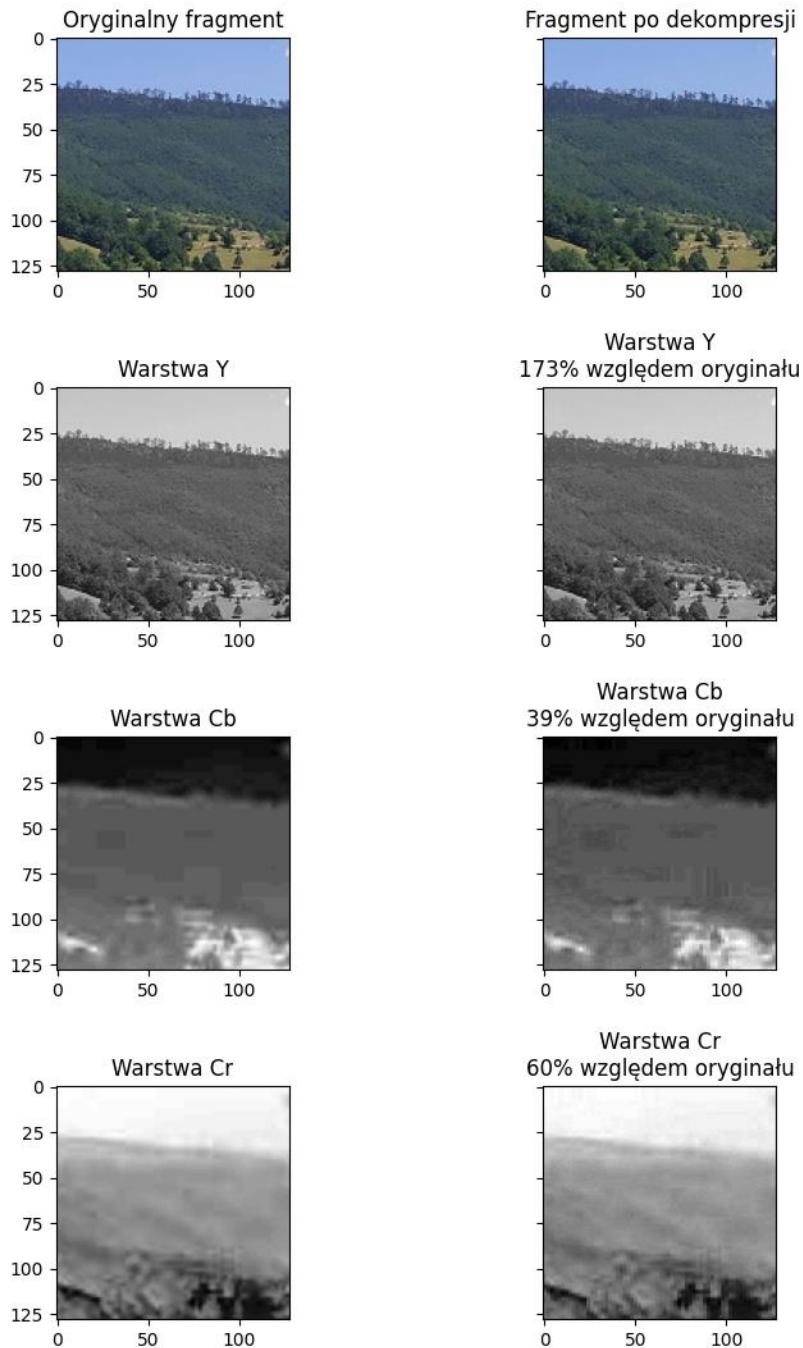
Porównanie oryginalnych warstw z warstwami po dekompresji
Ratio: 4:2:2, QY: True, QC: True



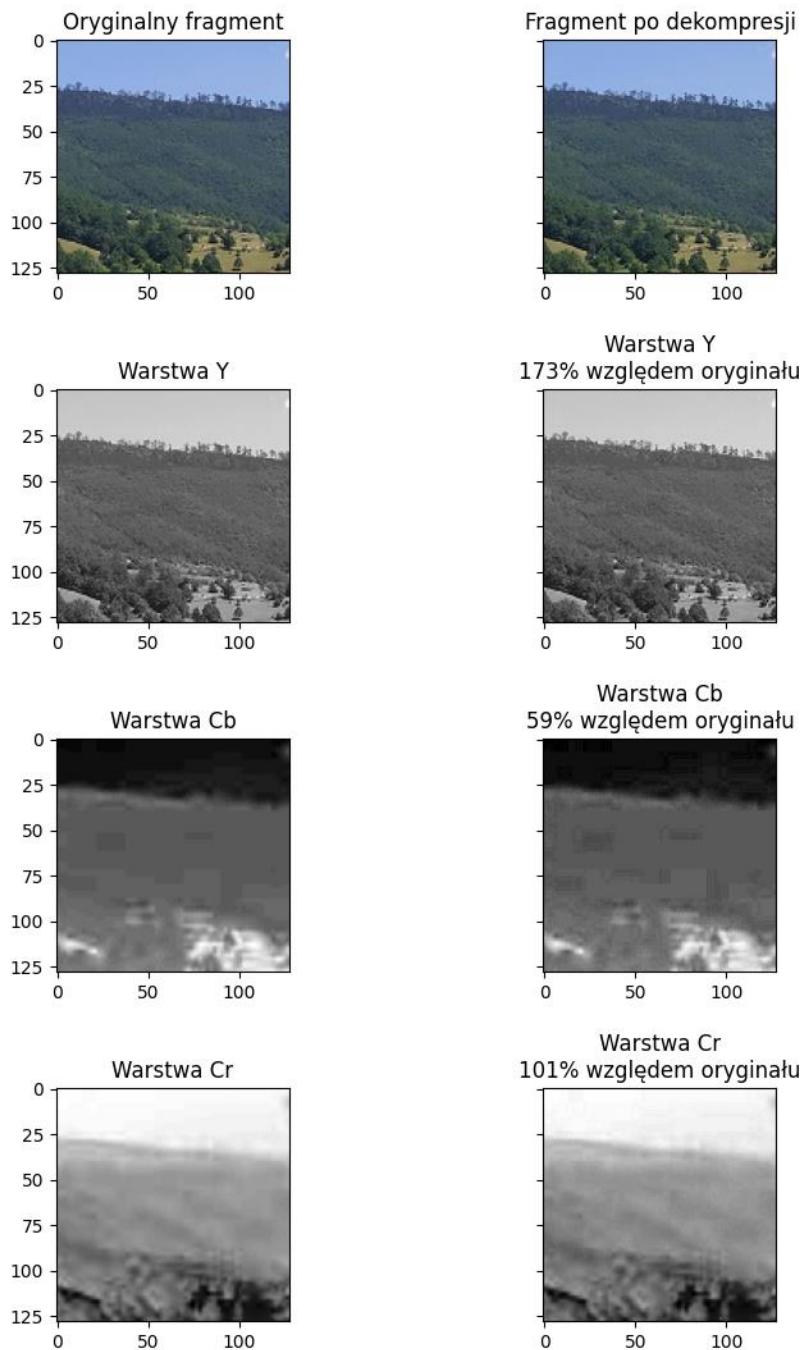
Porównanie oryginalnych warstw z warstwami po dekompresji
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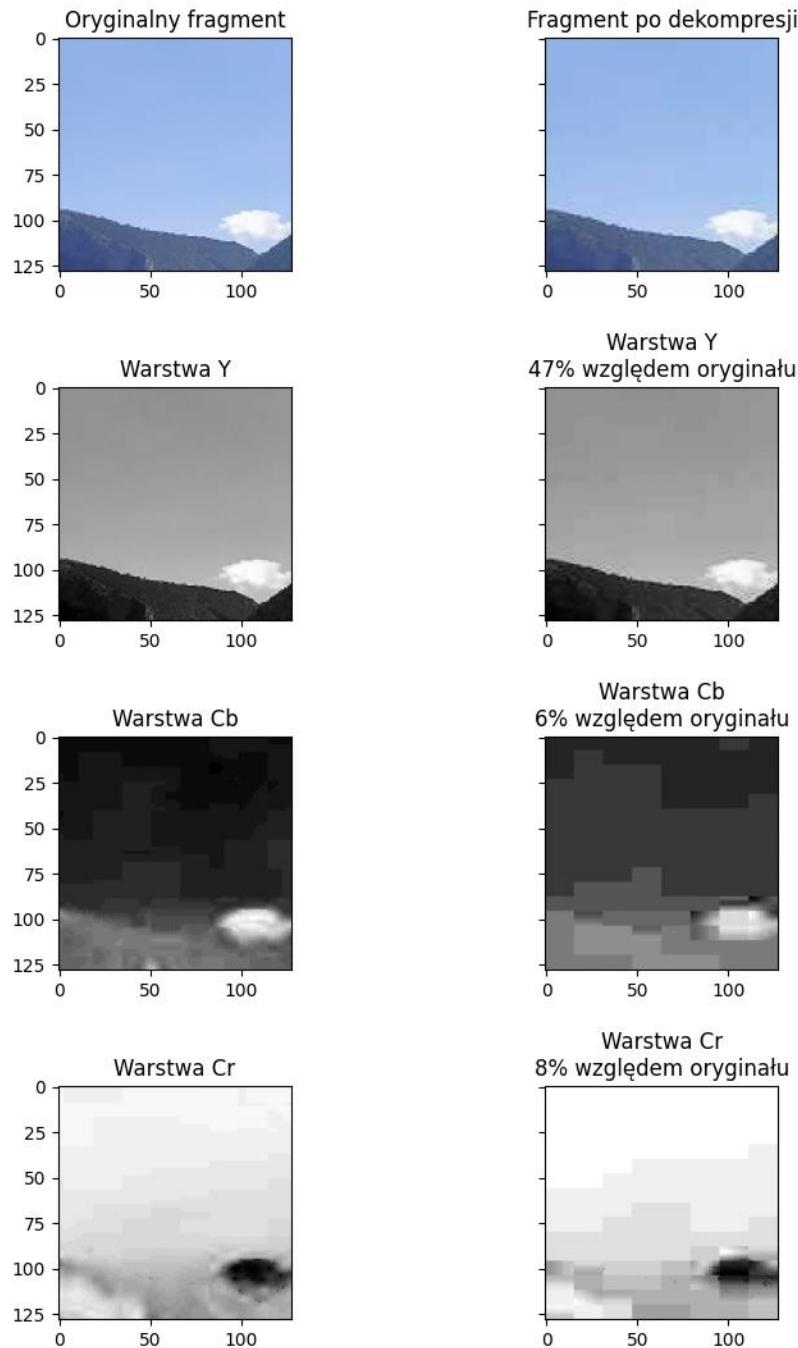
Porównanie oryginalnych warstw z warstwami po dekompresji
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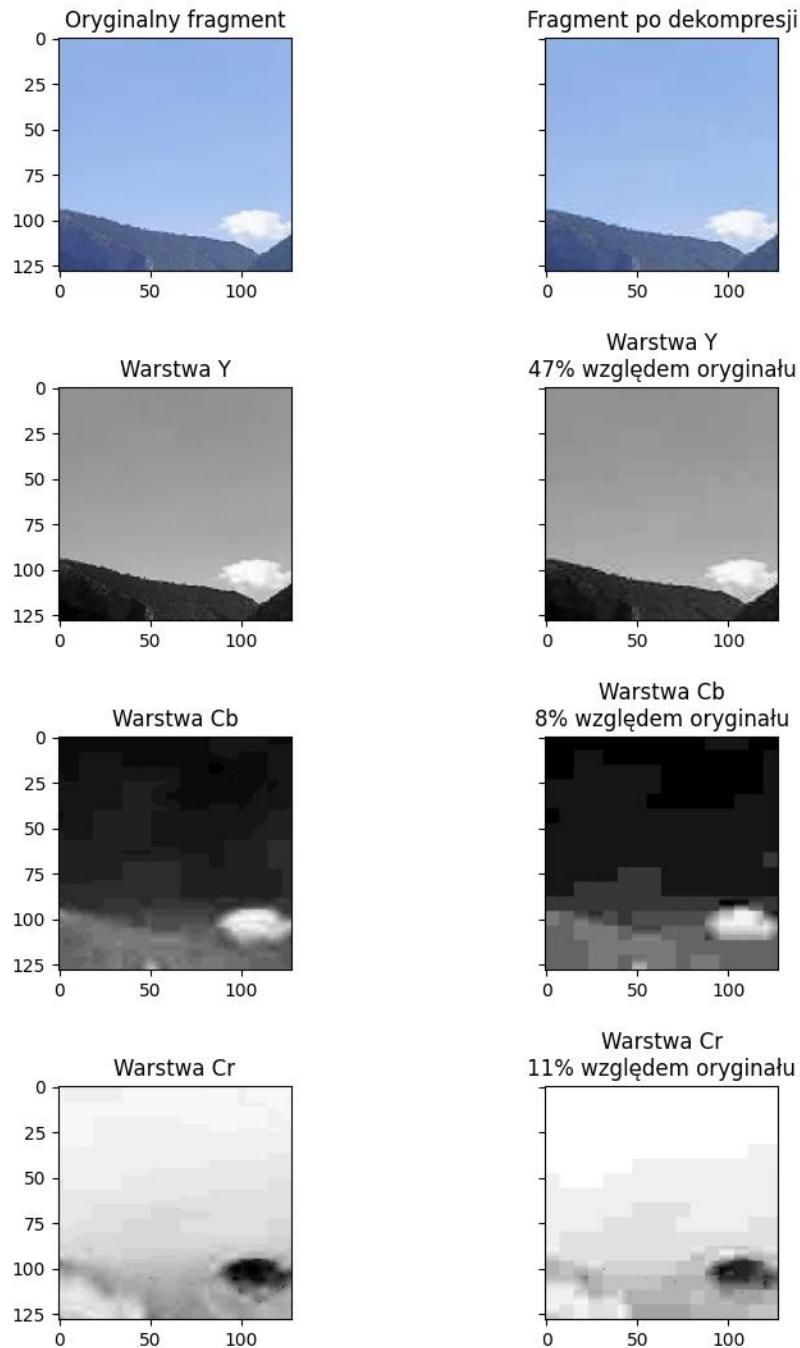
Porównanie oryginalnych warstw z warstwami po dekompresji
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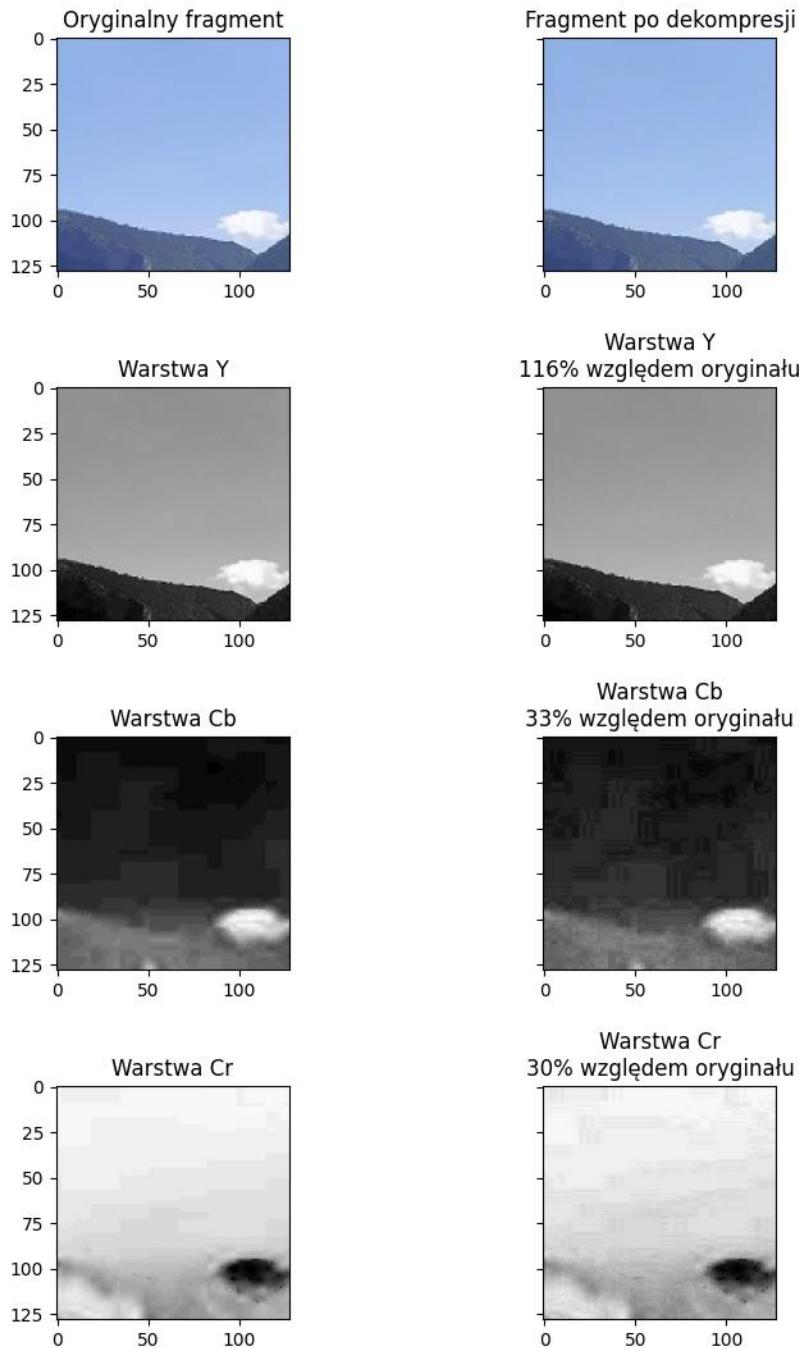
Porównanie oryginalnych warstw z warstwami po dekompresji
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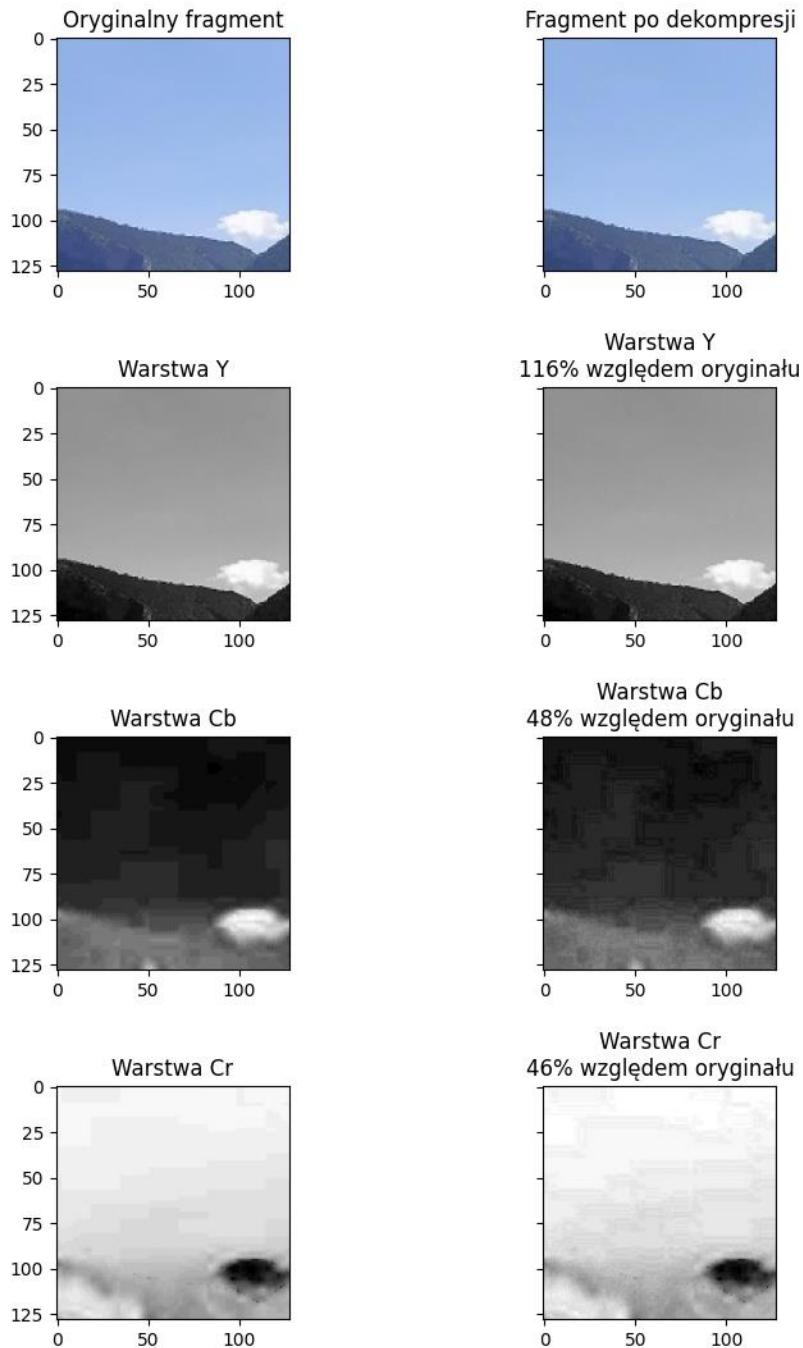
Porównanie oryginalnych warstw z warstwami po dekompresji
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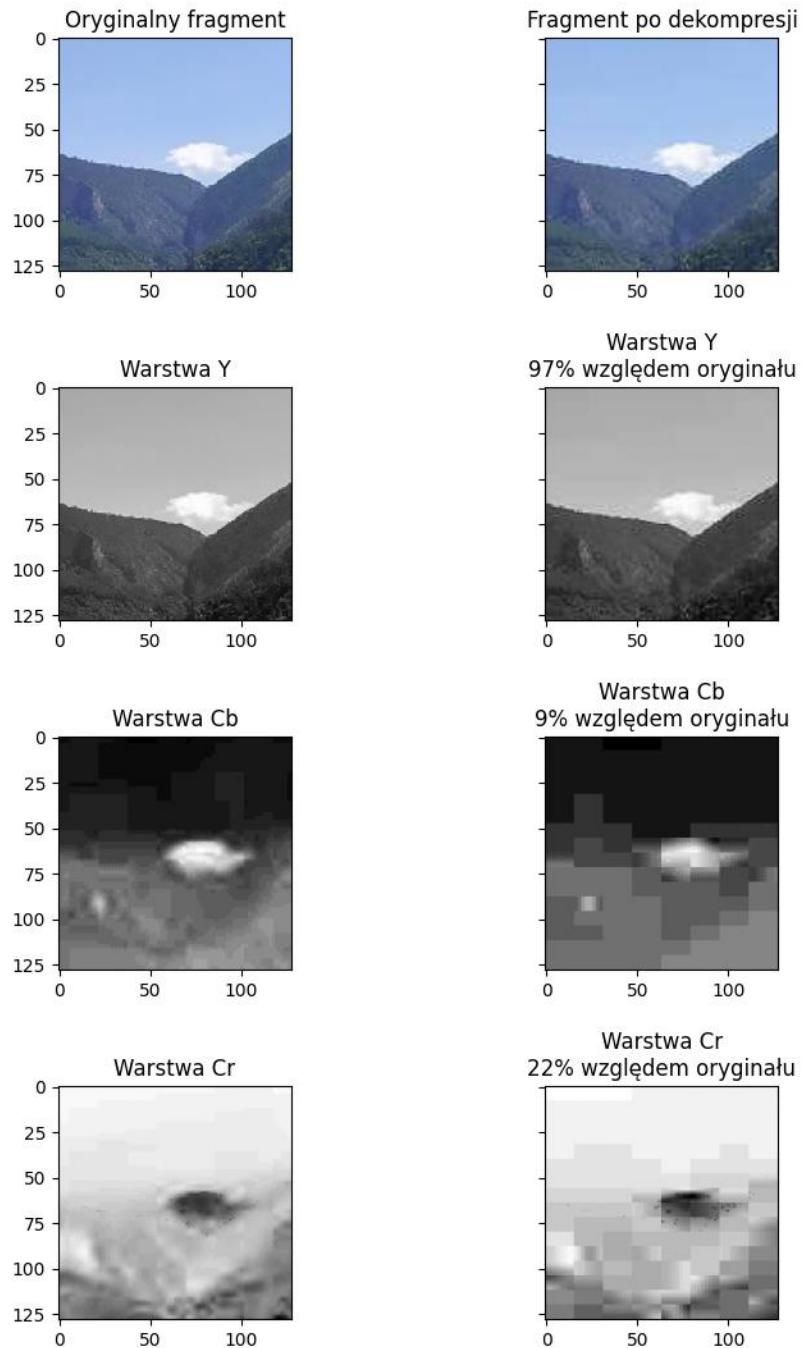
Porównanie oryginalnych warstw z warstwami po dekompresji
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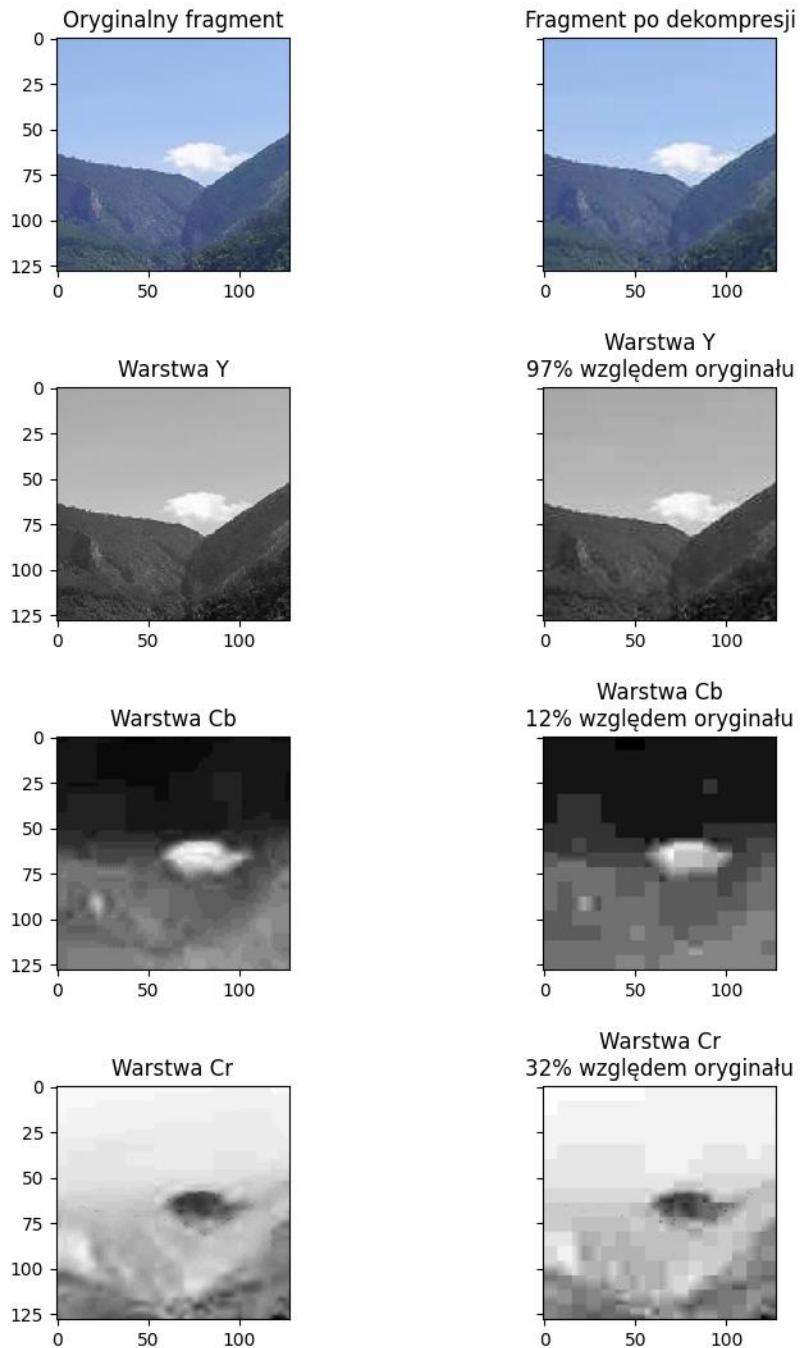
Porównanie oryginalnych warstw z warstwami po dekompresji
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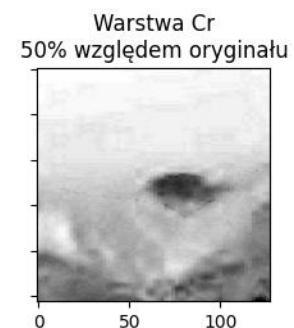
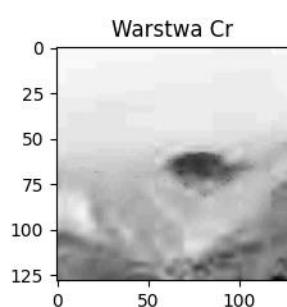
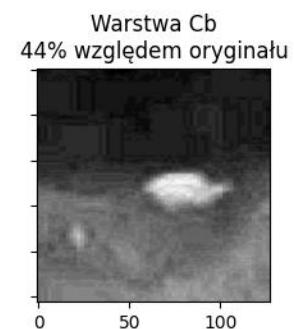
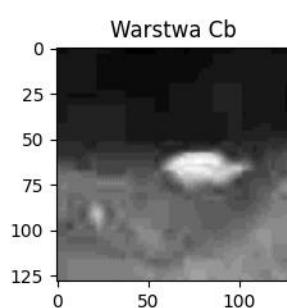
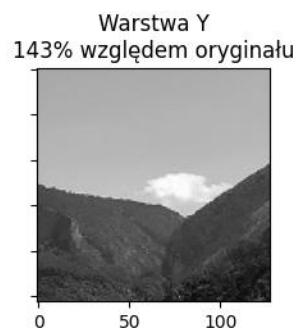
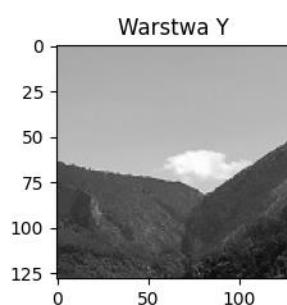
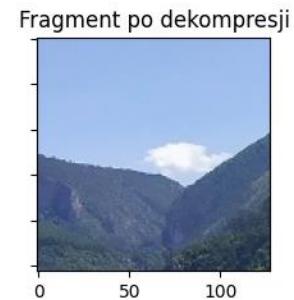
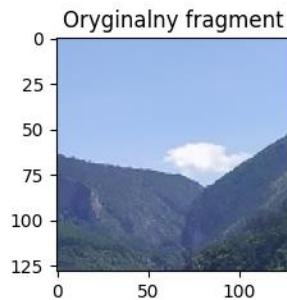
Porównanie oryginalnych warstw z warstwami po dekompresji
Ratio: 4:2:2, QY: True, QC: True



Porównanie oryginalnych warstw z warstwami po dekompresji
Ratio: 4:4:4, QY: True, QC: True



Porównanie oryginalnych warstw z warstwami po dekompresji
Ratio: 4:2:2, QY: False, QC: False



Porównanie oryginalnych warstw z warstwami po dekompresji
Ratio: 4:4:4, QY: False, QC: False

